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THE THEORY OF THE OFFSET FACTOR: THE IMPACT OF LABOR DISPUTES UPON COAL PRODUCTION

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Although bituminous coal mining in the United States contains only a small fraction of the industrial working force, it was responsible for a larger volume of dispute time losses than any other single industry during the two decades beginning in 1930. Moreover, in no other single industry has the possibility of interference with production by labor disputes generated as much showing of public alarm as in the case of bituminous coal.[1] Indeed at times, the power of this industry to develop

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Even a condensed list of names of the many persons to whom the author is indebted for help in preparation of this article must include: W. H. Young of the Bureau of Mines, Loretta Nolan and Ann Herlihy of the Bureau of Labor Statistics, Walter Slifer of the Bituminous Coal Institute, John L. Lewis and W. A. Boyle of the United Mine Workers, Osmond Harline of the University of Utah and Mrs. Suzanne Clauser, secretary in the Division of Economic Research at Indiana University. Professors Sterling McMillan of Western Reserve University, Clarence Efroymson of Butler University, Roland Davis, Arthur Schweitzer, William Andrews, and George Horwich who are colleagues at Indiana University, have all been good enough to read an original draft of the manuscript and offer helpful criticisms. Responsibility for the article in its final form, of course, must rest with the author.

[1] "Taking man-days idle as a rough measure of the extent of strike activity, the figures indicate that from 1927 to 1932 the man-days idle due to strikes in the coal mining industries averaged 61 per cent of man-days idle in all industries combined; . . . for the period, 1933 to the middle of 1946 . . . the man-days idle due to strikes in the coal industries averaged 27 per cent of the man-days idle in all industries combined." ***Economic Power of Labor Organizations; Hearings***, July 21-August 2, 1949, Committee on Banking and Currency, U.S. Senate, 81st Congress (Washington, D.C., 1950), Part I, p. 278. Hereafter cited: ***EPLO Hearings***. Warren states that for 1914-49, classification of news accounts of "reported strike situations" shows 23.4 per cent of those in the New York Times and 21 per cent of those in the Los Angeles Times were in coal mines. Railroad and airline strike situations were slightly more numerous (23.9 per cent) in the Los Angeles Times, but apart from that, in no other industry did strikes enlist as much newspaper coverage as in coal mining. Edgar L. Warren, "Thirty-Six Years of National Emergency Strikes," *Indus. Lab. Rel. Rev.*, Oct. 1951, V, 3-15.

political and journalistic heat has seemed greater than its capacity to furnish the basic fuel for the American industrial economy. In the policy controversies of the war and postwar years there was an appreciation of the national importance of the bituminous coal industry, but there was not always an equal recognition of its peculiar economic characteristics. The public press often attributed the operating pattern of the industry to the personalities of particular individuals without much allowance for the physical fact that coal mining is an industry of varying seams, faults, shafts, strips and product volatility. Numerous actions for dealing with strikes in this industry, and indeed in others, were taken; and the cry of "national emergency" whenever a stoppage was threatened became a cliché without much specific meaning.

It is the purpose of this article to develop a theory of the impact of disputes on production particularly applicable to the bituminous coal industry, but which may also outline some features that are of broader significance. Such a theory will not furnish a solution for national emergency strikes, but it may furnish guidance for determining when an emergency is present. In social as in medical science, it might be well for diagnosis to precede surgery. Even complete success in microscopic measurement of the influence of labor disputes upon coal production in the eighteen years, 1933-1950, will do no more than create a "small window that looketh out upon a great world." That window will have more than one opaque pane, and some mullions badly fitted, waiting for other more skillful efforts with better tools and more nearly pure materials to present a clearer view.[2]

I. *The Production and Dispute Record in Bituminous Coal 1933-1950*

A synoptic view of the relation of dispute time losses to the monthly output of coal is presented in the chart entitled "Monthly National Use Production and Disputes Man-Day Losses in Bituminous Coal 1933-50." The continuous line of monthly production calculated from the "Weekly Coal Reports" of the Bureau of Mines is the calendar-adjusted, total monthly output after the substraction of exports, bunker fuel, and coal used at the mines. These subtractions are based on the assumption, only partially valid, that such items involve commitments for coal that cannot be made available for internal consumption in the national market. The broken line on the chart records the number of man-days lost by labor disputes in the corresponding months as shown

[2] The Division of Economic Research at Indiana University has in process other studies on the economics of the coal industry, and this article is only a portion of a larger research plan.

in the file records of the Bureau of Labor Statistics.[3] Although a little cumbersome, it seems accurate to change the Bureau's terms of "man-days idle" in "work stoppages" to "disputes man-day losses."[4] This is the expression I have chosen to use throughout, except when considering the more general matter of strikes or lockouts without reference to specific monthly measurement, when I shall use the term "disputes time losses."

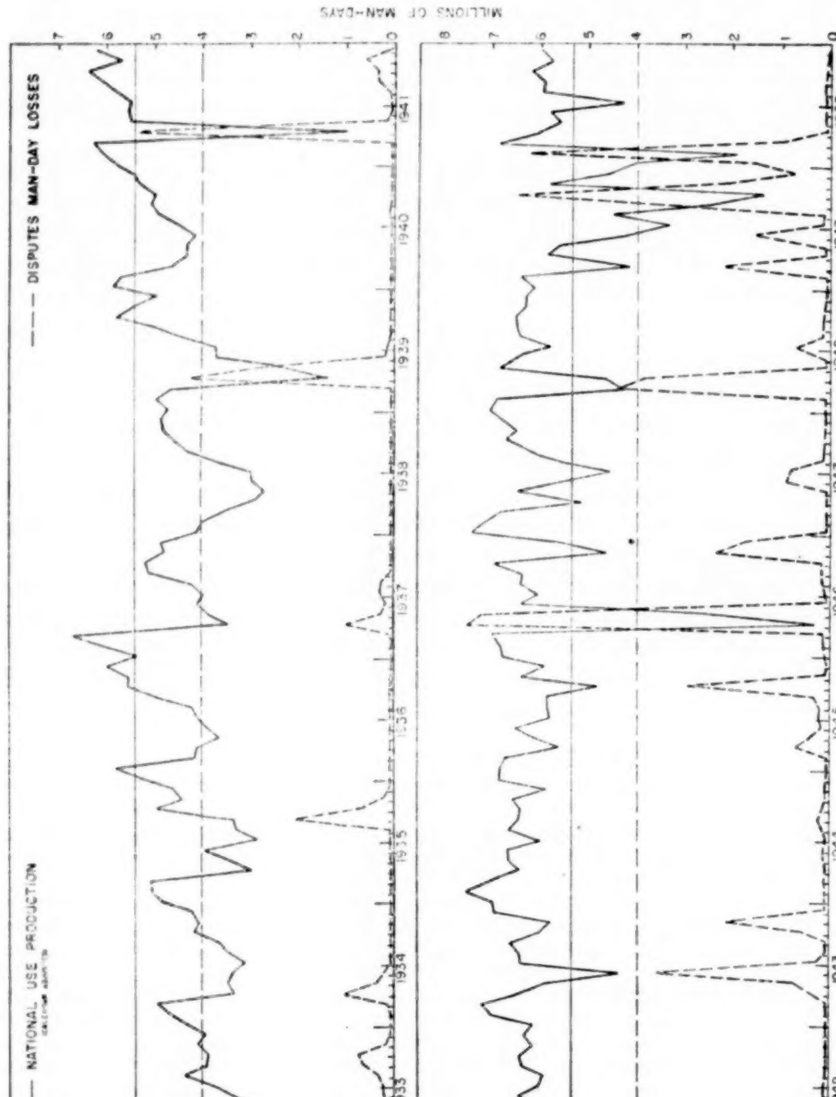
The presentation of the BLS disputes time loss record, without adjustment of any kind, against the background of a reduced and calendar-adjusted figure of total coal production, may seem to exaggerate the force of dispute time losses. However, the substraction of external items results in a smaller rate of tonnage loss per man-day of disputes than may be the actual case. Nevertheless, regarding these external items as firm commitments avoids overstatement in the amount of coal available for national use, and it cannot be said that the nature of any "emergency" has been minimized. In the calculated impact of dispute time losses "emergencies" are taken in full seriousness and perhaps even exaggerated. This is the reason adjustments are made in the production record even though I find no way of making similar modifications in the dispute time loss figures.

The scale for the production line, shown on the left side of the chart, is in millions of tons; while that for dispute time losses, on the right, is in millions of man-days. For convenient reading, guide lines have been drawn at the 40 million-ton monthly production level and at the level of four million man-day dispute time losses.

[3] The Bureau of Labor Statistics records "all known stoppages arising out of labor management disputes, involving six or more workers and continuing a full day (or shift), or longer. . . . Figures . . . on 'man-days idle' cover all workers made idle for one shift or longer in establishments directly involved in these stoppages." This statement or one similar will be found in any annual issue of the bulletins entitled "Analysis of Work Stoppages." For example, see Bull. No. 1090, U.S. BLS (Washington, D.C., 1952).

In the years while the Bureau of Mines also made an independent review of strikes in coal mining, the total time lost figures were usually somewhat larger than those reported by the Bureau of Labor Statistics. This may have been due in part to broader coverage but also may have been due to difference in definitions used. The Bureau of Mines classified its figures under the heading "Strikes, Suspensions and Lockouts," which might well include some stoppages omitted by BLS as not being "suspensions due to disputes." A memorandum of the Bureau of Labor Statistics recognized the difference in the records of the two agencies thus: in 1942, "the Bureau of Labor Statistics set up a new cooperative arrangement with the Solid Fuels Administration which resulted in the receipt of additional strike leads. When this agency went out of existence, cooperative arrangements were made with other agencies. Prior to this time, undoubtedly many of the small, short strikes were missed."

[4] The expression, work stoppage, seems to me less desirable than disputes loss, since it may apply to secondary stoppages occurring in other establishments and also to the many interruptions of production not directly or indirectly concerned with a labor dispute in spite of the Bureau's warning that this is not so intended.



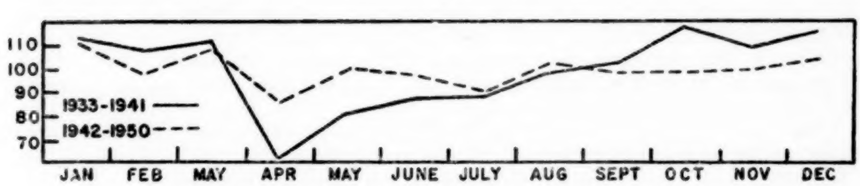
MONTHLY NATIONAL USE PRODUCTION AND DISPUTES MAN-DAY LOSSES IN BITUMINOUS COAL, 1933-1950.

The chart is divided into two sections, each covering a nine-year period of 108 months. Certain obvious points of the relationship between disputes time losses and production in these two periods are therefore easily compared. For the 1933-1941 period national use production is below the 40 million ton guide line in 87 months and above it for the other 21 months. In 1942-1950, however, there are only 19 months when production falls below the guide line and 89 months when it is considerably above. Indeed in 70 of these 89 months, output is between 40 and 50 million tons and in the other 19 it even passes the 50 million ton level. The annual seasonal variation and general upward trend, broken only by the 1938 recession, is apparent for the 1933-1941 period. In contrast, the disappearance of the rising trend and the reduction of seasonal influences[5] is evident for the later period. By 1942, the production line, having reached a much higher level, tends to remain there except during months of large dispute losses, until it is finally pushed downward by the 1949 postreconversion slump.

In dealing with the dispute record in the bituminous coal industry it is both sensible and convenient to take the figure of 300,000 monthly man-day losses as a bench mark to separate minor from major dispute months. I use the term "minor dispute month" to mean a month with dispute man-day losses of 300,000 or less, and the expression "major dispute month" to refer to those months with working time losses in excess of such amounts. For an industry with approximately 400,000 production workers this bench mark would be equivalent to a loss of one day of working time for 75 per cent of the force. Similarly, the figure of four million man-day losses which I have used for the guide line in the chart might represent a ten-day monthly time loss for an entire working force of 400,000 employees.[6]

While the number of months with less than 300,000 dispute man-day losses are not classified in detail, it should be stated that there was no

[5] Comparative indexes of seasonal variation appear as follows:



Seasonal Indices of U.S. Bituminous Coal Production
(Monthly Averages as Percent of Annual)

[6] Calculations based on the average monthly number of production workers attached to bituminous coal mining for each year as reported in the BLS Handbook of Labor Statistics (Washington, D.C., 1950), give annual average figures of 416,000 for 1933-1941 and 393,000 for the later nine-year period.

month during the eighteen years without some time loss from disputes. Partly because of the scale used, the chart line, representing minor dispute losses in certain months in 1933-1941, has to run so close to the base as to be almost imperceptible. Also, some small local disputes may have escaped recording in the earlier years.

The chart easily reveals that major dispute months involved time losses larger in magnitude and more numerous in 1942-1950 than in the nine earlier years. An exact count shows that 1942-1950 contained 27 such months, while there were only 14 in the 1933-1941 period. If these major dispute months are broken down into smaller classifications, only four months prior to 1942 involved dispute time losses of a million man-days or more, while there were 17 such months during the nine years following. The record for only two months during 1933-1941 crosses the four million man-day guide line on the chart, while that for five different months passed this mark after 1942.

The division of the eighteen-year record into two periods of nine years each has been based on several considerations. Not the least of these has been the special significance of the year 1941 as the demarcation line for the first period. From the ashes of the 'twenties, under the impetus of the NRA in 1933, the phoenix of unionism in the coal industry began its resurgence. It reached maturity only at the close of 1941. Then it was that the formal inclusion of the industrial-consumer owned mines (*i.e.*, "captive mines") within the orbit of unionism made the recognition of the United Mine Workers of America (hereafter U.M.W.) extend through about 80 per cent of the industry.[7]

[7] The 80 per cent figure is an approximation of the actual facts. The campaigns of the rival Progressive Mine Workers of America in West Virginia, Pennsylvania, Kentucky, and Kansas had come to unsuccessful ends by 1940, and that organization was then confined to representation in the Illinois mines. Its membership by 1950 was between eight and ten thousand in mines producing about 25 per cent of the Illinois tonnage. For the only comprehensive study of the P.M.W. see Harriet D. Hudson, *The Progressive Mine Workers of America: A Study in Rival Unionism* (University of Illinois Bull. Ser. No. 73, Urbana, 1952). Since the 1947 withdrawal of the U.M.W. from the A.F. of L., membership figures have not been published, but the Welfare and Retirement payments of 128 million dollars in 1951 represent payments on 82.5 per cent of the tonnage produced in that year, while payments for the 12 months ending July 1, 1949, covered 76 per cent of the tonnage. Important coal producing states from which welfare payments covered considerably less than 60 per cent of state tonnage were Kentucky and West Virginia. The possibility of both late and advance payments prevents such calculations from being precise measurements. See *U.S. News and World Report*, May 2, 1952, p. 59; *Chronology; U.M.W. Welfare and Retirement Fund*, (U.M.W., Washington, D.C., 1950), p. 14. Also, see Testimony of Josephine Roche, in *EPLO Hearings*, Part I, p. 194 and pp. 141, 143, 146, and 518. Daugherty and Parrish probably overstate the membership of U.M.W. as being 90 per cent of the bituminous mine workers in 1951. However, the calculation on the basis of current tonnage covered by welfare payments is not parallel with estimates of union membership in the working force. Many men may retain union membership after retirement, or when working only part-time, and, moveover, output per

However, the complete acceptance of unionism in the consumer-owned mines since 1941 has tended to cover up the fact that significant portions of the commercial branch of the industry have remained outside the unionized framework. Probably, if the commercially sold production is taken alone, only about 75 per cent of tonnage has been from mines operating under U.M.W. agreements.

It is sometimes claimed, and it is certainly implied in the declarations of policy of both the National Labor Relations Act and of its successor, the Labor Management Relations Act, that when organizational strife in the establishment of unionism is over, losses in working time due to labor disputes may be expected to decrease. For the bituminous coal industry, at least, such claims are not well founded. The simple review of the actual record shows clearly that dispute time losses since 1942 have been vastly greater than in the earlier years of ascendancy of unionism before its widespread acceptance had been re-established.

This finding, significant though it may be, is not the most striking revelation growing out of the review of the production and dispute record. The truly surprising discovery, for purposes of this study, is the demonstrated fact that the greater dispute time losses after 1942 were accompanied by output from the coal mines exceeding that of all previous records. No other nine-year period in the entire history of coal mining in the United States can match the record of 1942-1950 either for dispute time losses or for production. It is this phenomenon which demands explanation.

II. *The Theory of the Offset Factor*

Two Forms of Impacts of Dispute Time Losses on Production

A layman's view of the relation of production to dispute time losses might be: "Coal miners, when they work, produce coal don't they? Then when they walk out or are locked out, they don't mine coal and therefore output falls by the amount that would have been produced if the men had remained at work." It seems apparent that this simple view, if not entirely wrong, is still considerably less than half the truth.

An explanation of the actual record of the relation between disputes time losses and production requires the development of a new theory which I call "the theory of the offset factor."[8] The offset factor is

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man in some of the nonunion mines may be higher than in unionized mines. See Carroll R. Daugherty and John B. Parrish, *The Labor Problems of American Society* (Boston, 1952), p. 570.

[8] Awareness of need for such a theory is indicated in the writings of others. Thus George Taylor writes concerning the BLS disputes figures, "These data, which constitute a census

merely a label for those forces which mitigate the impact of dispute time loses upon production. The identification of these forces is difficult and needs development in detail. It is assumed that labor disputes represent real differences between representatives of employees and management officials which are, in part, causal forces that influence the volume of production. This is certainly implicit in the layman's view of disputes and is also the view expressed in many of the Congressional proposals for dealing with national emergency strikes. At present, I do not challenge this assumption, although it probably is not universally valid. A publicly declared labor dispute might be a result of a particular production level as well as the cause of it. Moreover, such a dispute may be less of a contest between management and labor than it is an expression of different views of industry control.

Whether labor disputes generate production changes or are themselves generated by the level of production, they are in any case immediate short-run phenomena. A mine while closed down during a labor dispute does not produce coal. This much is about all there is in the layman's view that is obviously correct. But the importance of this observation lies in its emphasis on the immediacy of the relation between a dispute and output, not in its usefulness for measurement of the full strength of the impact of the dispute.

The full effect of dispute time losses on production volume is by no means simple, nor is it uniform for all industries. I do not pretend to identify all the different pertinent industrial circumstances, but a few that seem generally important may be mentioned. In considering the impact of any dispute time loss it is necessary to observe the character of the product as well as the nature of the production process, and more specifically the importance of labor to current output. Coal is a source of industrial power, but so too is electricity generated by hydro-electric plants. Conceivably, however, a labor dispute which resulted in the walk-out of the entire mechanical force of a hydro-electric station, for say, twenty-four hours, might make no difference whatever in the

of strikes, are frequently presumed to be an adequate index of the severity of costs of strikes in their impact on national output, production, or the effective prosecution of the war. No such presumption is justified. Many strikes result in no net loss in working time or production since hours that would otherwise have been idle are worked. Other stoppages in the critical component may have tremendous effects upon total production. It is simply impossible to indicate the effect of industrial disputes from simple enumeration." "Labor's No-Strike Pledge—A Statistical Review," *Yearbook of American Labor* (New York, 1945), p. 140. Milton Friedman states suggestively: "In many cases, so to speak, unions are simply thermometers registering heat rather than furnaces producing the heat." In D. M. Wright, *The Impact of the Union* (New York, 1951), p. 222, also p. 205. For an argument which even more closely parallels that developed here see Lloyd G. Reynolds, *Labor Economics and Labor Relations* (New York, 1949), p. 307. My own study shows that some points mentioned by Reynolds are of much broader applicability than he allows.

amount of electricity delivered. Similarly an oil refinery might continue regular production for a day with only a skeleton crew. On the other hand, readers who want today's news will not get it by the delivery of a paper which is printed next month; nor will an audience that wants entertainment tonight get it if the cast and stage crew walk out with the promise of returning next week.

The bituminous coal mining industry is not a continuous process industry that might operate automatically without any labor for a short time; nor in the major dispute months, are we confronted with temporarily endurable defection of small portions of a labor force. Neither, however, is coal a commodity that is consumed concomitantly with its production so that any temporary stoppage means a complete loss of the service that might have been forthcoming had there been no dispute. Measured by dollar cost of production, bituminous coal is from 50 to 70 per cent labor; and major time losses are almost certainly associated with the termination date of national or district agreements. They usually apply to the entire productive labor force of the firms involved in the dispute. The illustrations mentioned are theoretical possibilities, but their importance here is simply to make the character of the coal industry stand out in sharp relief. Viewed from the side of the production process, dispute time losses in the coal industry present a real possibility of bringing about reduction in total output.[9]

The impact of any dispute that results in reducing total output below levels that would have prevailed had that dispute not occurred I choose to label "detractive." However, this type of impact is not the only kind associated with dispute time losses.

Approaching the question from the demand side, we may consider a situation when the total demand for coal is decreasing. During such a period representing a downswing in the business cycle, coal output will be falling due to a shrinkage in consumer demand requirements. A dispute time loss arising under these circumstances, if spread broadly enough over a large portion of the industry, may affect the location of the output shrinkage even though it does not change its absolute quantity. It is this power to influence the location of an already shrinking output that I call the "distributive" impact of dispute time losses.

This distributive impact is often overlooked because of the mistaken assumption that labor union action tends to be limited only to efforts to

[9] Preliminary examination of materials suggests that coal may be considered as having a relatively inelastic demand schedule not subject to rapid shifts in position. There are, however, some notable qualifications, as in the case of certain steam electric generating plants that maintain auxiliary oil burning equipment which may be brought into use quickly if there is distress selling of fuel oil. Over longer periods there are still broader possibilities of reliance upon substitutes. For the present these long-run forces are neglected.

improve current working conditions for members as individuals. But in a period of shrinking demand, falling production is almost certain to bring increasing unemployment, especially in an industry where wages bulk large in total costs. The simple fact that employment and production are two different sides of the same coin must therefore mean that any union action designed to influence the manner in which unemployment is to spread must also influence the distribution of the volume of production.

This classification of dispute impacts recognizes that even the potential effect of dispute time losses on production may vary depending upon the conditions of demand existing when the dispute occurs. The detractive impact, which is the kind that seems to be most common in the layman's mind, may not exist at all under conditions of falling demand, although a distributive impact may still be present.

The clearest illustration of the distributive impact in the coal industry occurs during seasonal recessions. Such timing was almost automatic and regular in the coal industry during the period 1933-1941, because of the practice of having union wage agreements terminate in April. Speaking broadly, the effect of this practice is to synchronize the possibility of prolonged stoppages over failure to reach agreement with normally anticipated seasonal reduction in demand. A generally supported walkout would merely spread the adjustment to shrinking demand throughout all mines. Such a dispute, however, may be charged with contributing to an aggregate production shrinkage even though the apparent detractive impact certainly would be spurious.

This situation presents a serious dilemma from which I have found no adjustment of the statistical record that provides a satisfactory solution. Especially in so far as the bituminous coal industry is concerned, it cannot be said with confidence that dispute time losses are strictly independent forces divorced from cyclical and seasonal variations.[10] Whether the dispute time losses have any real distributive impact under these circumstances, depends upon how extensively the dispute spreads through the industry.

[10] Customarily it seems to be assumed that strikes are irregular factors in time series. Thus one well-known text in economic statistics discussing adjustments for various movements in time series, reports: "The scheme most commonly employed for this purpose involves a fourfold classification attributing variations in time series to changes in the seasons, to the business cycle, to secular growth or decline, and to numerous irregular influences such as wars, droughts, and *strikes*." (Italics mine.) D. W. Paden and E. F. Lindquist, *Statistics for Economics and Business* (New York, 1951), p. 170. Unfortunately for simplicity of statistical procedure, strikes in the coal industry cannot be treated as merely "irregular influences." Even in a broader economic setting than a single industry the careful study by Rees suggests that strikes may be a part of business cycle movements rather than "irregular influences." Albert Rees, "Industrial Conflict and Business Fluctuations," *Jour. Pol. Econ.*, Oct., 1952, LX, 371-82.

Both the detractive and distributive impact of dispute time losses are positive elements that threaten to influence the character of production. This does not mean, however, that the threatened influence is necessarily disastrous for aggregate output or that distribution of output among firms is actually modified. Both such impacts may be mitigated, perhaps even absorbed completely, through the operation of the offset factor. Its operation may vary considerably, and these variations will be examined after the general nature of the offset factor has been set forth.

The Offset Factor: Its Two Forms

The offset factor may appear in either of two forms, and both are potential neutralizers of the detractive impact of disputes. One of these I call the "current-transfer offset factor" and the other the "time-shift offset factor." The basic characteristic of the current-transfer offset factor in the coal industry is the ability to move orders from mines where coal production has been impaired by a dispute, to mines not so affected. Such movement may be by coal consumers placing orders elsewhere, by operators of multiple units shifting production from one mine to another, by sales agents handling business of many different mines, or indeed, by operators of closed mines purchasing coal elsewhere at such times to fill orders for regular customers.[11]

The time-shift offset factor does not mean any transfer of orders but is simply the power of mines, whether directly affected by a dispute or not, to move production from one operating period to another. This time-shift offset factor itself has two aspects, one of which I call "anticipatory" and the other "retroactive."

The time-shift is anticipatory when the advance prospect of a dispute is clear enough to encourage increased output *before* the stoppage occurs. There is a serious oversight in treating major disputes in the coal industry, and perhaps in other industries also, as if they were comparable to the unannounced spontaneous eruption of a volcano. Rarely is this true. Termination dates of union agreements are public knowledge long before the event, and many major dispute time losses occur under circumstances that facilitate use of the anticipatory feature of the time-shift offset factor.

The retroactive aspect of the time-shift offset appears after the event of the dispute. It provides the possibility of increased output above the levels that would have prevailed for that period had there been no dispute. It functions if there was no anticipatory action or when antici-

[11] Actual cases of this procedure have been found among Indiana mines. Some union mines in Indiana have brought coal from nonunion mines in Kentucky to fill orders during major disputes. Sale through agents is a widespread practice in the industry.

patory action was inadequate to reduce the detractive impact of the dispute to zero.

An essential element of the offset factor, both in its current-transfer and time-shift form, is the presence of unused productive capacity. No offset factor of either type is possible unless output has the potentiality of being expanded significantly and rapidly. But the degree of unused capacity may vary not only through time but also currently from one portion of the industry to another, especially so if productivity is not uniform. Hence, the power of the offset factor to mitigate the impact of a particular dispute depends not only on the time at which the dispute takes place but also upon the geographical location of the part of the industry in which it occurs.

The Current-Transfer Offset Factor

While the element of unused capacity is necessary for both forms of the offset factor, it is not a sufficient condition for creation of the current-transfer. For the current-transfer to be operative it is important that the industry in which a dispute occurs be one composed of a large number of independent firms producing a homogeneous commodity, or at least one where product differentiation is not so pronounced as to seriously limit substitution. It is necessary that some firms be outside the scope of the dispute and also be effective sellers in the same market area served by those firms where the stoppage in production is taking place.

These basic requirements for the current-transfer offset factor are approximated in the bituminous coal industry. Active production of coal takes place in widely scattered mines in thirty different states. While coal is not all of uniform quality, substantial homogeneity is obtained through industrial purchasing on the basis of BTU content rather than by reference to brand names. Most important of all is the fact that these dispersed mines furnish great flexibility in output, and not even the most widely spread dispute has ever encompassed all firms in the industry.

There are, however, two obstacles to prevent the coal industry from fully meeting the basic requirements for a perfect current-transfer offset factor. One of these is noticeable product differentiation for the coking quality coals, combined with nearly complete ownership of these coals by the industrial consumers. Both the large difference in quality and special ownership serve to remove these coals, which represent perhaps 16 to 19 per cent of total output, from the commercial market. The net effect is that the current-transfer offset factor can contribute little to reduce the impact of dispute time losses occurring within these "captive" mines, and neither does it gain any support from

the operation of these mines when the commercial mines are closed down. On the other hand, the power of current-transfer in the commercial branch of the industry cannot be fully allowed for in our measurements. Statistical materials do not permit the monthly production and disputes time records to be split into units dealing with commercial and consumer-owned mines separately. Failure to do so tends to give a distorted impression of the extent of unionism. Thus, it also contributes to a misleading underestimate of the full power of current-transfer in the commercial branch of the industry.

The other important obstacle is concerned with mine location and transportation problems. Even if all coals other than the special coking coals entered in the commercial market and were uniform in character (which they are not), thousands of mines in the many states are not all equally available to consumers everywhere. Thus, the presence of large unused capacity in the bituminous mines of Utah permits no possibility of a current-transfer offset to mitigate the impact on production of a dispute which closes down all the mines in the great industrial consuming centers east of the Mississippi. The cost of shipment of a bulky commodity fixes the limits of the area within which the operation of the current-transfer offset factor can take place. But the determination of the boundaries of the market area by transport costs is not peculiar to the coal industry. What does seem to be special for this industry is that the available transportation facilities tend to be exhausted long before the limits of productive capacity to mine coal are reached. Hence the presence of unused capacity for the coal industry itself may be less important for the operation of the offset factor (in both forms) than the availability of rolling stock in the railroads upon which the industry must rely for delivery of about 80 per cent of its output. For the current-transfer offset factor to operate fully, not only must there be unfilled rail cars at the right time, but they must be available to serve the mines that are not affected by the dispute.

Even if the productivity of all the mines were uniform, location of the area of a dispute might still be important in determining the power of the current-transfer offset. Widening the extent of unionism makes disputes arising over failure to agree upon renewal of contracts spread over a larger area. Hence, it also tends to weaken the force of the offset factor in this form.

The Time-Shift Offset Factor

Number of firms, homogeneity of product, or extent of the dispute area are of much less importance for the operation of the time-shift offset factor. Indeed this form of offset may mitigate the impact of a

dispute which brings about closing of *all* coal mines for a short period. Just as in the case of current-transfer, its power would be limited by the degree of unused capacity in the industry. Here too the decisive element may not be the capacity to mine more coal but the availability of additional transportation facilities.[12] During a localized dispute the time-shift offset factor might operate as a supplement to current-transfer, but its strength does not rest on the location of a particular dispute. What counts most in determining the real power of the time-shift is the *duration* of the dispute. This is because of the fact that the longer the dispute lasts, the less significant becomes a given margin of unused capacity existing before the beginning of the dispute. The power of the anticipatory feature of the time-shift offset is thereby reduced.

However, given a dispute of short duration, the anticipatory feature of the time-shift can go into effect either regionally or on an even broader scale providing there is unused capacity and reason to believe that a stoppage of production may be imminent. The time-shift offset can hardly act concurrently with the current-transfer but it may serve as an important supplement.

At the other end, the supplemental strength of the retroactive feature of the time-shift offset factor is derived from the ability of consumers to wait upon production. At least since 1947 in the American economy generally, this ability probably has been much greater than assumed during the heated controversies associated with major disputes.[13] For

[12] Writing in 1923, Tryon and Wing made this significant statement, which is still valid and important: "If the mines are generally at work, the limiting factor becomes transportation, and further increase in price encourages the opening of thousands of wagon mines which, under the law, can demand transportation and whose activities so dilute the available car supply handled by the carriers." David L. Wing and F. G. Tryon, "Fluctuations in Coal Production," Ch. XV in Persons, et al., *The Problem of Business Forecasting* (Boston, 1923), p. 200.

Ten days prior to a U.M.W. announced closing of mines, the author had an interview with an executive of one of the large coal companies. The interview was interrupted many times while this official negotiated by telephone with industrial buyers for advance orders and with railroad officials for additional freight cars. There was no question about ability to mine the coal and hardly any as to getting advance orders; it was shortage of shipping facilities that appeared as the real capacity limitation. While this official apologized for the interruptions, he might well have charged the author a fee for carrying on an excellent laboratory demonstration of the time-shift offset factor in actual operation.

[13] The retroactive feature of the time-shift offset factor is real for other industries besides coal. Thus, consider the following statement from the *Monthly Letter on Economic Conditions and Government Finance of the National City Bank of New York:* "The year 1952 has closed with most of the overall measures of business at new highs and with spreading confidence in the outlook. *Some observers doubt that the business indexes would now be as high if there had been no steel strike or catching up period afterward,* but *debate* on *that point* would be *idle*. The important matter is that production organization has again surpassed all previous accomplishments. Not only in dollar values, but in physical terms, which are the measures of welfare, the output of goods and services during the year has set another new record" (Jan. 1953 issue), p. 1, (italics mine). While "debate" may be "idle," critical examination of "that point" is not.

the coal industry some measure of this ability is possible through a study of the records of consumer stock piles. Although this matter is reserved for separate study later, it is mentioned here because it leads to observation of the interrelation between the anticipatory and retroactive features of the time-shift offset factor. It is the building up of excess consumer stocks through the anticipatory feature and their relation to consumer use during the dispute that may determine whether the retroactive time-shift offset factor later comes into operation at all.

Interrelations of the Various Forces

The detractive impact of dispute time losses will reduce current output unless it is attenuated by the current-transfer offset factor. It exerts its full force if a dispute covers an entire industry under conditions of constant or increasing demand for the product. During a period of decreasing demand a dispute may have no effect on total output unless the time loss involved is greater than would have occurred as a result of the shrinking demand requirements taken alone. In that case the impact of the dispute becomes detractive to the extent that output reductions result from this excess time loss, and the remaining impact is distributive. We cannot take the detractive and distributive impacts of disputes as if they were forces always appearing separately; in actual situations they may be combined, and it may be difficult to disentangle them for study.

So, too, the different forms of the offset factor may be blended together, in certain cases. A prospective dispute which threatens to close half of the operating coal mines may encourage a great burst in output among all the mines, which later may be augmented still more within the mines that are not shut down. Such blending, however, does not mean that the current-transfer and time-shift are in fact companionate forces. They are, indeed, more emphatically alternative and complementary to each other. The known presence of a strong current-transfer tends to reduce the importance of the time-shift offset factor. Conversely, the absence of current-transfer increases the significance of time-shift. Just so, a too mild reliance upon the anticipatory feature may increase the use of the retroactive feature after a dispute has been settled.

III. *The Application of the Offset Theory to the Empirical Record*

The Correlation Procedure

If there were no offset factor at work, and also if no other forces than dispute time losses contributed to fluctuations in monthly output, then monthly production would be directly correlated with dispute man-day losses and the coefficient of correlation between them should

be -1.0. This is the mathematical form which the layman's view of the impact of disputes on production would take. If, however, no external forces were at work to produce output variations, but there was nevertheless a strong current-transfer offset factor whenever a dispute occurred, the correlation coefficient would approach zero, its actual value being dependent upon the strength of the current-transfer offset. If the current-transfer offset were only powerful enough to neutralize about half the impact of a dispute, but no more, then the coefficient would calculate to $-.7$ ($r^2 = .49$). Unfortunately, all the other external forces cannot even be identified, to say nothing of being extracted from the statistical record. Hence, such coefficients cannot be relied upon to have these precise meanings.

However, if all other external forces could be identified and extracted, our monthly figures still could not show the full force of the time-shift offset factor even if it was known to be present. Only if the time-shift operates within the month when a dispute occurs will it contribute directly to reducing the correlation calculations. A high correlation coefficient between monthly output and dispute man-day losses is indication of weakness of the current-transfer, but it does not mean that the time-shift offset factor is ineffectual. Rather it may mean that in emphasizing the direct relation between production and time-losses in the major dispute months the effectiveness of the time-shift offset factor which must come in the minor dispute months is subordinated.

If the components of the offset factor have been properly identified, given a situation in which all mines are producing at full capacity when a dispute occurs, or is impending, there is no possibility of immediate short-time expansion. If the dispute involves all mines, it follows that the offset factor in both forms has no power. The immediate impact of disputes time losses upon production is then, and I would say *only then,* direct and complete; the correlation coefficients will be close to -1.0. No allowance would need to be made for the fact that monthly calculations may tend to obscure the anticipatory and retroactive features of the offset factor in this case. However, even close approximation to such cases is rare. In the entire eighteen-year period even the disputes of April-May 1946 only faintly resemble such a situation.

In an attempt to apply the theory of the offset factor to empirical data, the figures for all years are classified in seven groups, each containing years with generally similar economic conditions. This breaks the nine-year record of 1933-1941 into three segments. The first of these, labeled Segment A, consists of the three major dispute years of initial economic revival, 1933, 1934, and 1935; a second segment labeled B is made up of the minor dispute years, 1936, 1938, and 1940;

and finally the third Segment C containing the three major dispute years, 1937, 1939, and 1941, represents a secondary revival group. The 1942-1950 period breaks into four segments. The war years, 1942-1945, contain two major dispute years, 1943 and 1945, making Segment D, and two minor dispute years, 1942 and 1944, making Segment E. The other five years of the postwar period break into two clear segments with major dispute years in each of them. The first of these is the postwar reconversion Segment F, 1946, 1947, and 1948, while Segment G might be called the postreconstruction slump consisting of the two years, 1949 and 1950.

Calculations for 1933-1941

For each of these segments scatter diagrams were made of monthly national use production (Y in millions of tons) in relation to dispute man-day losses (X in thousands of man-days). Regression lines were constructed for each of these diagrams and Table I contains the figures showing the results of these calculations for the major dispute years of the nine-year period, 1933-1941. Results of the next step of determining correlation coefficients[14] between national use production and disputes man-day losses for these same segments of this nine-year period are also presented.

These calculations reveal that a regression line for the period 1933, 1934, and 1935 begins at a lower level (28.6 million tons monthly) and falls at a much less rapid rate (1.28 million tons per million man-day losses) than does a similarly constructed line for the three years, 1937, 1939, and 1941. For the latter segment (C) the regression line begins at 38.9 million tons monthly and falls at a rate of 6.86 million tons per million man-day losses. The correlation computations show clearly that prior to 1936, dispute time losses had a negligible effect on total coal production. The correlation between unadjusted monthly production and dispute time losses of −.10 is so low as to be unimpressive, and when trend and seasonal variation in output are allowed for, the correlation −.17 is still negligible. The one could account for barely one per cent ($r^2 = .01$) of monthly fluctuations in output, and the second, with seasonality allowed for, still would not explain three per cent

[14] Tests to determine whether these correlation coefficients are significantly different from zero have been made. The results showed the correlation coefficients were not significant for Segment A, but were significant for the major dispute Segment C. The actual calculations of $\frac{r}{\sigma r}$ were —.5914 in segment A, *r* based on national use production and —1.005 (if *r* was calculated on adjusted production figures). The corresponding calculations for the C Segment give —4.672 when applied to the unadjusted correlations and —4.61 for the other series.

TABLE I.—RELATION OF MONTHLY NATIONAL USE PRODUCTION TO DISPUTE MAN-DAY LOSSES, 1933–1941

	Major Dispute Years		Minor Dispute Years
	A 1933, 34, & 35	C 1937, 39, & 41	B 1936, 38, & 40
Regression Line:[a]			
Begins at Level	28.68	38.99	—
Rate of Fall	1.28	6.86	—
Correlation Coefficients:[b]			
Unadjusted	−.10	−.79	−.16
Adjusted	−.17	−.78	+.49

[a] Figures in millions of tons and rate of fall per million man-days.
[b] Monthly national use production, Y, and dispute time losses, X.

($r^2 = .028$). This suggests that the detractive impact was largely spurious, and that which was real was neutralized by the offset factor in current-transfer form.

Construction of a regression line showing rate of fall in production per million man-day losses for Segment B, the minor dispute years, would be a curiosity without much meaning, as no single month involved as much as a 75,000 man-day loss. Nevertheless, the correlation coefficients were calculated to show how slightly such time losses influenced the total production record. Hardly noticeable if correlated with unadjusted production volume (−.16), with allowance for seasonal and trend factors, the positive correlation coefficient suggests that disputes stimulated increases in output. Of course, the positive correlation coefficient of +.49 is misleading and means merely that if seasonal adjustments are made, dispute time losses of the magnitude involved for these three years were easily absorbed. Speaking broadly and freely, such individual strikes or lockouts may determine *what* mines will *not* produce in a particular week but they cannot bring about increases in total output. They are small enough so that especially in periods of a generally wide margin of unused capacity the current-transfer offset factor will neutralize them completely and output will reach levels established by other forces.

The contrast between Segment C and A is striking. Output has now reached higher levels and the duration as well as magnitude of disputes has been increased (see chart). Our regression line which begins at a production level of 38.9 million tons monthly falls at a rate of 6.86 million tons per million man-days dispute time losses.

The correlation coefficient between monthly production and man-day

losses which is −.79 when using unadjusted production figures, falls only slightly (to −.78), when output data are adjusted for seasonal and trend forces. This means that for these three years, more than 60 per cent of monthly fluctuations in production (r^2 = 62.4, or 60.8 if output is adjusted) were associated with dispute time losses.

Thus, the impact of disputes on production volume in the years of Segment C was considerably more than in earlier years. Although still present, the offset factor, especially in its current-transfer form, has lost some of its power. It would be a mistake, however, to think that the power of the offset factor had disappeared. Actually, the time losses of Segment C, although greater than those for A, never absorbed as much as a full month of working time. The largest of these, in April 1941 5.25 million man-days, were roughly two-thirds the monthly working time of the industry.

Other monthly time losses in Segment C were all of less magnitude. The effort to gain general acceptance of the renewed union agreement in April 1937 involved losses of 978,000 man-days during that month, and each of the four succeeding months also showed dispute time losses between 100,000 and 300,000 man-days. The renewal of agreements two years later associated with the effort to establish general acceptance of the union shop brought time losses of 4.23 million man-days in April and 2.75 million in May.

An increase from one to four million monthly dispute time losses, taken alone, will tend to reduce the power of the offset factor, but such an increase still needs to be examined in relation to other factors. At no time during 1937, 1939 and 1941 could it be said that bituminous coal mining operated at full capacity. Only eleven months during the entire three years showed reported weekly working time above 30 hours, and in none of these did hours per week fully reach the U.M.W. standard of 35. The operation of the current-transfer form of the offset factor is shown concretely by the substantial increase in the relative proportion of output from the partially unionized states of Illinois and Western Kentucky during the major dispute months of 1939 and 1941. Moreover, great increases in output in the months before April in both 1939 and 1941 are indicative of the operation of time-shift on a substantial scale.

The Calculations for 1942-1950

The calculations of the relation of monthly production to dispute time losses for 1942-1950 yield a very different result from that for the earlier nine years. The figures for regression lines showing rate of fall in monthly output per million man-days for these years, along with

correlation coefficients between production and dispute time losses, appear in Table II.

TABLE II.—RELATION OF MONTHLY NATIONAL USE PRODUCTION TO DISPUTE MAN-DAY LOSSES, 1942–1950

	Major Dispute Years			Minor Dispute Years
	D 1943 & 45	F 1946, 47, & 48	G 1949 & 50	E 1942 & 44
Regression Line:[a]				
Begins at Level	48.3	48.7	42.3	—
Rate of Fall	4.45	5.03	4.90	—
Correlation Coefficients:[b]				
Unadjusted	−.84	−.90	−.81	+.32
Adjusted	−.81	−.92	−.82	+.39

[a] Figures in millions of tons and rate of fall per million man-days.
[b] Monthly national use production, Y, and dispute time losses, X.

Here the computed regressions for all the major dispute segments would begin at higher levels and fall at less rapid rates than was true for the major dispute Segment C of 1933-1941. When correlation coefficients are computed,[15] the increased force of the detractive impact of disputes upon production becomes very clear. For the two war years, 1943 and 1945, the correlation coefficient between national use production and monthly dispute time losses is −.84. When volume is adjusted seasonally and for trend, the result is a coefficient of −.81. It seems safe to say that over 65 per cent (r^2 = 68.7, or 64.8 if output is adjusted) of the monthly variation in output is explained by dispute time losses. Again the correlations for the minor dispute years 1942 and 1944 (E), like those for Segment B of the earlier period, do not mean what they seem to say. The positive correlations are indicative of the great productive capacity of the industry in these years with few small dispute losses.

[15] Similar tests to those made for correlations of 1933-1941 confirm the increased significance of the relation of production to dispute time losses for the second nine-year period. For the two major dispute years of the war period (D), a t-test gives a result of $t = -7.262$ when applied to the unadjusted production coefficient and −6.47 when the adjusted production calculation is used. The same test for the two year Segment G gives $t = -6.479$ or −6.72 depending upon whether the correlation is calculated on unadjusted or adjusted production respectively. For the postwar reconversion Segment (F), when 36 months permit the $\frac{r}{\sigma r}$ formula the result is −5.32 and −5.44 on unadjusted and adjusted data.

A still more pronounced relation between production variations and dispute time losses appears for the postwar reconversion years, 1946, 1947, and 1948. Here the correlation coefficient rises to a new height of −.90 or −.92 depending upon whether unadjusted or adjusted output figures are used. This, then, indicates that over 80 per cent of the monthly production variation is accounted for by dispute time losses (r^2 = 81, or 84.6 if output is adjusted). It may also be observed that for the first time, adjustment for seasonality and trend raises rather than lowers the correlation coefficient. This is also true for the two post-reconversion slump years, 1949 and 1950. Our correlation coefficient for these years is −.81 when national use production figures are involved and −.82 when they are adjusted seasonally and for trend. In either case, we have again over two-thirds of monthly variations in output (r^2 = 65.6, or 67.2 if output is adjusted) definitely associated with disputes time losses.

The record then shows that the apparent detractive impact of disputes on production has been substantially greater since 1942 than it was in the earlier years. In part, this is attributed to a weakening of the offset factor, especially in its current-transfer form. It was pointed out earlier that essential components of the offset factor were immediate shiftability of orders and unused capacity. In the application of the theory to post-1941 conditions, therefore, it is relevant to re-emphasize the expanded orbit of unionism and the fact that the major disputes concerning renewal of agreements may encompass about 80 per cent of potential industrial output. Moreover, the expansion of aggregate output of the war and postwar years pushed the actual output levels closer to full capacity.[16]

[16] By request of the Hard Fuels Coordinator, the U.M.W. and the Northern Appalachian Coal Operators Association modified the then (Jan., 1943) existing agreement so as to permit a six-day week with overtime payment for work above 35 hours. See *Proceedings Thirty-Eighth Constitutional Convention of U.M.W.A.* (Washington, D.C., 1944), p. 93. Later, ceiling prices on coal were adjusted upward by O.P.A. (p. 104). It was alleged, however, that although prices were actually advanced to the new ceilings, the six-day week with punitive overtime was rarely followed (p. 144). Operator representatives deny this (p. 146). For present purposes I have not attempted to determine the accuracy of these claims. It is enough now to reveal that the record shows a clear margin of unused capacity during all of 1943. Even in the four major dispute months of May, June, October and November, when extra working time may not have been available in some weeks, full use seems not to have been made of all potential working time in other weeks. Reported average hours worked weekly for the two years, 1942 and 1943, were as follows:

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1942	31.3	31.6	31.5	31.8	32.7	33.2	29.7	32.1	33.5	34.2	34.4	35.7
1943	34.7	37.0	38.6	36.9	<u>35.2</u>	<u>28.4</u>	37.1	40.3	39.4	<u>39.0</u>	<u>28.6</u>	44.6

Major dispute months are underscored.

IV. *Supplemental Examination of 1942-1950 Segments*

The War Years

Since the correlation analysis used thus far is more indicative of changes in the power of the current-transfer form of the offset factor than it is of time-shift, more detailed examination of the individual segments of 1942-1950 is now required. For the war years, 1943 and 1945, disputes were not equal in magnitude to those of 1939 and 1941, although they were greater than those of 1933, 1934, and 1935 (see chart). Since this was so, even an offset factor weaker than in 1939 and 1941 might be sufficient to neutralize the dispute impact. In spite of the fact that higher output volume and expansion of unionism reduced the strength of the current-transfer offset, there are clear indications of its continued vitality. Imperfections of materials prevent a direct observation, but if our vision cannot be clear, neither is it completely obscured.

A glimpse of the forces at work is to be had from the varying character of state production records for 1943, compared with those for 1942, when dispute time losses were of a minor character.

If all coal producing states showed the same rate of increase or decrease in 1943 monthly production compared with the same months of 1942, then the 1942 proportions of total tonnage for each state would not change. On the other hand, a rate of change in one state's tonnage that varies from that of other states indicates a shift in the relative position of that state. Such shifting proportions of state production are too crude to be used as measurements, but they are nevertheless rough indicators of the strength of the offset factor. We know that Virginia, West Virginia, Western Kentucky, and Illinois are at least partially outside the spheres of control of the U.M.W. Hence, if during critical dispute periods, output in these states rises sharply, it suggests that the current-transfer offset factor is operating vigorously. Unfortunately, the state units, except perhaps for Western Kentucky, are all too large to isolate in pure form the areas not covered by major union disputes.

It should be remembered that 1943 was the war year with the prolonged controversy as to portal-to-portal pay. This controversy, while it turned out to be the basis for several interruptions in coal production, was of special importance since it involved the application of the Fair Labor Standards Act to all firms dealing in interstate commerce. Therefore, it could not be strictly insulated either within U.M.W. influence or indeed within the coal industry taken alone.[17]

[17] For details of the scope of the controversy see U. S. Congress, Senate Committee on Judiciary, *Report of the Portal Bill*, S. Rept. No. 37, 80th Cong., 1st Sess. (1947).

The critical months of 1943 were June and November with 3.4 million and 2.1 million dispute man-day losses respectively; but April, May and October also were months with over 300,000 man-day losses. Examination of the state records reveals that in the major dispute month June 1943, when output for all coal producing states was down to 71 per cent, Western Kentucky and Illinois produced almost 90 per cent of their volume for the corresponding month of 1942. Virginia and West Virginia, with smaller numbers of mines outside U.M.W. influence, exceeded the national average for all coal producing states only slightly. The relatively greater volume during this critical month for Western Kentucky and Illinois is the current-transfer offset factor at work. Moreover, the figures also show the same force at work in the less critical month of November, when smaller time losses contribute to reducing national output to 93.9 per cent, while Illinois and Western Kentucky more than match the 1942 output level.

More striking than this blurred picture of the current-transfer offset factor is the revelation of the power of the time-shift offset factor in 1943. The U.M.W. 1941 two-year agreement, then in effect, was due to terminate March 31. This was not only common knowledge, but there was clear warning, as early as February 10, that renewal was likely to be associated with some dispute since on that date northern and southern operators indicated unwillingness to accept U.M.W. Policy Committee proposals. In testifying before the Truman Committee on March 26, Mr. Lewis cited the Tennessee Coal and Iron Case to indicate the new importance of the portal-to-portal pay issue.[18]

Under such circumstances the time-shift offset factor came into play. Output in all coal producing states in January 1943 was about comparable with that for 1942, but February and March showed sharp increases in volume everywhere. In March 1943 national use production reached the enormous total of 55 million tons, a figure never reached for any other month in our entire eighteen-year record, except January 1947.[19] The dramatic appearance of the anticipatory time-shift offset factor, therefore, is shown clearly.

Further observation reveals also the appearance of the time-shift in its retroactive form. While the U.M.W. agreement, due to expire March 31, was not renewed on time, it was extended for thirty days on Presidential request, and a second failure to renew resulted in government seizure of the mines early in May. April and May, therefore, were

[18] See *Proceedings Thirty-Eighth Constitutional Convention, U.M.W.* (Washington, D.C., 1944), pp. 93, 95, 97, and 112.

[19] Because of heavy exports in the postwar period, total output exceeded this figure in one month of 1946, four months of 1947 and two months of 1948.

months with no formal disputes, but sporadic walkouts brought 350,000 and 680,000 man-day losses in these months respectively. Time losses of these dimensions were easily neutralized, and 1943 output was about equal to that for 1942 in both months.

Apart from the strength of the offset factor already noticed, both in the current-transfer form and the anticipatory time-shift before June, there were also clear signs of its retroactive form in the months following June. Save for October and November, all the remaining months of the year brought production to levels considerably above those for the preceding year. The remarkable feature of the year 1943 was not that there were five months, each with dispute losses of more than 300,000 man-days; but rather that, in spite of about six per cent shrinkage in production workers, and 7.5 million annual dispute man-day losses compared with about 264,000 in 1942, the total output for the year was 101.4 per cent of that for 1942. It is difficult to read such a record without feeling the power of the offset factor hoisting the coal cars to the tipple!

The other major dispute year of the war, 1945, presents a different pattern; for while the war did not close until late in that year, military industrial production began to fall early in the year. The industrial production index which began at the same level as in 1944, sagged noticeably in April, and continued to do so throughout the rest of the year. It would be expected that such general industrial retrenchment would show itself in reduced coal output, which did prove to be the case.

The coal output shrinkage of 1945 was evident during the entire year until the winter months of November and December, when production rose a little above that for 1944. This falling output meant a widening margin of unused capacity during a year when dispute time losses, although significant, were still not as large as in 1943. The time losses of April and May, 672,000 and 347,000 man-days respectively, were scattered and associated with sporadic outbursts rather than general official stoppages. U.M.W. officials, recommending an extension of work for thirty days after the March 31 agreement termination date, seemed unable to muster enough disciplined support to prevent individual defections.

Such individual defections in a period of sagging demand cannot have even a distributive impact on production. This impact must depend on the breadth of the dispute time loss. For if the margin of unused capacity is becoming wider, and numerous scattered mines are untouched by the defections, these can easily absorb the unfilled orders of the mines that are closed. Hence the current-transfer offset factor effectively prevents a broad distribution of the shrinkage in total pro-

duction requirements and forces concentration on those mines where the sporadic stoppages are occurring. With current-transfer having such power, the time-shift offset factor will hardly operate at all.

Thus April production was well over 40 million tons and was 88 per cent of that for the same month in 1944. But since the operation of the current-transfer offset factor is spread widely under circumstances of such sporadic minor disputes, the results are not strikingly apparent in production records for individual localities. The output in the partially organized centers shows only slightly better positions than in 1944.

The Postwar Reconversion Years—1946, 1947, and 1948

The high correlation between the monthly production record and dispute time losses for these three years calls for some special attention. First, one needs to point out that both in terms of extent and duration the dispute time losses of this segment are of larger magnitude than for any other portion of the eighteen-year period. From this standpoint, no earlier year matched 1946, although the 1948 record was not far below.

The significance of 1946 as the year of transition cannot be overemphasized. While started in 1945, reconversion was far from complete at the close of that year. The prolonged automobile dispute which began in November did not come to an end until March 13, 1946, and heavy industry was not back to full-scale operation until after the first quarter of 1946. This point becomes sharpened with the detail that the April 1946 index of industrial production (1935-1939 = 100) stood at 190 as compared with 336 in April of the preceding year.[20]

It is the magnitude of the 1946 disputes which has the most direct bearing on the operation of the current-transfer offset factor. Reference to the chart shows graphically that April 1946 comes closer to demonstrating the layman's view of the impact of disputes upon production than does any other portion of the eighteen-year record. Dispute time losses of 7.5 million man-days were recorded for April, and national use production fell to 1.6 million tons. In no other month had the bituminous coal industry come so close to a total shutdown. Moreover, curtailment of output seems to have been general, as I find no evidence of any shift in the relative importance of any of the large coal producing states. The current-transfer offset factor, if indeed it was not completely broken down, seems to have been sent to the shop for repair.

However, contrary to the simple view that disputes have a direct

[20] H. M. Douty: "Review of Basic American Labor Conditions," *Labor in Post-War America* (Brooklyn, 1949), p. 110.

impact on production commensurate with the amount of time lost, the current-transfer offset factor seemed to have made a quick recovery. Recorded dispute time lost for the very next month of May was only slightly under (7.2 million man-days) that for April, but national use production came back to a level just under 19 million tons. Moreover, this rapid return to higher level output occurred with another shift in the relative importance of the different coal producing areas; this time it was Ohio, Illinois, and West Virginia that seemed to share the honors of temporarily improved positions.

Reduction in the power of the current-transfer offset by the large-scale dispute losses in the early part of the year, however, was not the only feature of 1946 that deserves emphasis. Long before the April disputes time losses set in, the work of the anticipatory feature of the time-shift offset factor had come into evidence. Even while major disputes in the heavy industries were reducing the amounts of the then current coal requirements, the output of mined coal was rising sharply. National use production for the first three months of 1946 exceeded any other first quarter except for the year 1944; and even 1944 would have been subordinate to 1946 if the comparison were made on the basis of total production with the huge volume of exports included (see chart). Once this is observed, the theory of the offset factor in the form of time-shift becomes a rational explanation.

Even with a strong anticipatory time-shift factor, however, the dispute time losses of 1946 were of such magnitude as to deplete substantial accumulated reserve stocks. Hence the other feature of the time-shift also becomes of significance. If the larger-scale dispute time losses of April-May impaired output substantially and reduced accumulated inventories, nevertheless the retroactive features of the time-shift offset also provided for a speedy revival. Total output for the summer months, June, July and August, exceeded that for any other year in the entire record, including the bumper year of 1944. Even with greatly expanded export shipment, summer month output for national use was still slightly above that for each of the two preceding years.[21]

[21] From the shipper's point of view the story was told dramatically thus: "The brilliance which characterized the monthly shipments of bituminous coal from Lake Erie during such parts of the season 1946 when the railroads and vessels were amply supplied with cargo coal can best be evaluated not through the accomplishments of the preceding season, but by comparison with the trade of 1944 when splendid sailing conditions, precision of dispatch and a larger fleet of vessels conspired to bring about the all-time record movement of approximately 53 million tons. . . . Following the sharp recovery to 6½ million tons in June loadings, there ensued an unprecedented flood of coal from mines to lake front docks, thence by vessels to destination. During 123 days of shipping, July 1 to October 31, all former monthly records were broken, and total shipments of 31,758,621 tons constituted 65.82 per cent of the entire season's soft coal shipments." See *Annual Report of the Lake Carrier's Association* (Cleveland, 1946), p. 68.

The records for 1947 and 1948 follow somewhat the same patterns as that of 1946 in attenuated form. Although both can be classified as major dispute years in accordance with our scale, neither of them came even close to matching the 1946 record. In both years, the major dispute months brought some mild shifting of state positions and were preceded by months of expanding total production. The July (6-14) dispute losses in 1948 require some special mention since these were confined to the "captive" mines. Partly because of their limited scope, but more particularly because of the specialized character of the production, we can find no sign of any area shifting that suggests the operation of the current-transfer offset factor at work.

The Post-Reconstruction Slump—1949-1950

The rising trend of coal production of the nine years, 1933-1941, graphically presented, becomes a series of mountain peaks and intervening valleys formed by the seasonal variations, with dispute time losses seeming to blend in with the seasons. The graphic pattern which suggests the mountain climbing course, leads to the long high plateau, which begins in 1942 and continues until 1949 with regularity not found in the earlier period. Indeed, it is almost correct to say that such irregularity as may be found in the post-1941 period is associated with the dispute time losses along with the anticipatory and retroactive compensation for their impact. But the graphic picture of the plateau changes with 1949, as if nature had cut a giant gorge into the landscape. The steep descent of the first part of 1949, broken by the influence of disputes time losses, comes to an end only late in the year, when the pinnacle of winter production has to be crossed before reaching the new plateau level of 1950 (see chart). This language like all impressionism, suggests but does not describe the actual course of the production record.

The continuing slump through all of 1949, shown by the falling index of industrial production and by the rising volume of unemployment, brought with it recession in coal orders.[22] Under such circumstances only the distributive impact can be real, and the apparent detractive impact is bound to be spurious. Falling total industrial demand is certain to bring with it a decline in coal requirements. Understanding of the 1949 record requires a realization that the forces

[22] During the last half of 1948 there were feeble suggestions that recession might be forthcoming. Even though the industrial production index and the volume of employment seemed to be maintained throughout the year, the average weekly working time in manufacturing during the last half of 1948 was slightly under that prevailing for the first half. See Council of Economic Advisers, *The Annual Economic Review* (Washington, D.C., 1950), pp. 157, 169, and 170.

contributing to the decline in coal requirements *preceded* the major dispute time losses and were not created by them.

The year 1949 was not only special in that it was a year of recession, but also in that there were a number of weeks which involved officially directed union reductions in working time which were not classified as disputes losses. Thus the U.M.W.-ordered three-day week, which began the first week in July and extended through August and half of September, was not counted as a labor dispute in the BLS series of disputes man-day losses, but the walkouts beginning September 19 in protest to the stoppage of Welfare and Retirement Fund payments, are included. Technically, the largest dispute man-day losses of the year were those associated with these walkouts, which continued until after a meeting of the U.M.W. policy committee resulted in ordering "the 305,000 soft coal miners east of the Mississippi back to work until November 30, 1949." Failure to reach a new agreement in November brought another general order of a three-day week effective December 5, 1949, but signing of individual agreements with some mines shortly thereafter partially restored the five-day week basis of operation. Dispute time losses of substantial volume continued throughout January and February 1950, until a new National Bituminous Coal Agreement was generally accepted on March 5.[23] Hence, under the special conditions of 1949-1950, the ordinary dispute time losses associated directly with a failure to renew an operating agreement were supplemented with time losses growing out of officially approved reduced weekly work schedules. These supplementary time losses are important, not only for themselves, but as illustrative of points mentioned earlier in our analysis, *i.e.*, that some dispute time losses represent merely another label for reduced operation which would have occurred for other reasons had there been no dispute. The official union orders of a three-day week are a more concrete manifestation of this without the formal pretense of dispute time loss.

The policy, so far as U.M.W. was concerned, was openly stated. The official *U.M.W. Journal* reported:

> . . . divide the orders, share the work program is now a "must" in the soft coal industry. Since the soft coal industry on its own accord, cannot get together and exhibit the business acumen necessary to protect its employees and the business and population of the mining communities, the duty of performing this public service devolves upon the only stabilizing force the industry has ever known, the U.M.W.A.[24]

Still earlier, in announcing the June 13-30 stoppage which was classified

[23] See U.M.W., *Welfare and Retirement Fund: Four Year Summary and Chronology* (Washington, D.C., 1951), pp. 31-43, hereafter cited: *W. & R. Summary.*

[24] *W. & R. Summary*, p. 33.

as a dispute time loss by BLS, President Lewis of the U.M.W. called it:

> . . . a brief stabilizing period of inaction during which cessation of all mining will occur [and stated the reason for this move was that], magnificent production efforts so far this year have resulted in overproduction with consequent economic instability among miners. This period of inaction will emphasize a lack of general stability in the industry and the dangers which will accrue therefrom if current harmful practices are not remedied. It will contribute constructively to the abatement of current economic demoralization; it will not adversely affect the public interest; it will help preserve property values in the industry; and it will help preserve the living standards of the mine workers, their dependents and the communities which depend upon mine workers' incomes.[25]

The view expressed by Mr. Lewis, if correct, may also be extended to other disputes time losses if equivalent working time reduction would take place in any case. It is not a view of the time losses of 1949 that was uniformly accepted. Thus in a National Association of Manufacturers' monograph the disputes time losses of 1949-1950 are regarded as having brought both workers and coal operators immediate serious losses and also as having created later secondary effects on other industries. Unfortunately for this argument, it becomes a little difficult to accept after the admission is made that "Had it not been for the large accumulation of stocks of coal just prior to the beginning of the three-day work week, the coal stoppages of 1949-50 would have brought about an economic crisis."[26]

This admission, if our analysis has been correct, points to the crux of the problem for 1949-1950. The introduction of the three-day week, if extended universally throughout the industry, might have dispersed the force of shrinking demand but could hardly have created a detractive impact on total output. Even in such partially organized pockets as Western Kentucky, the production for all months of 1949 tended to be distinctly under that for 1948, both in months when other areas were little affected by disputes, as well as when the three-day week was in force and large-scale disputes time losses were being sustained. In such a year the current-transfer may exercise only a mild influence in neutralizing the distributive impact of disputes, and the time-shift offset factor is hardly operative at all. If the detractive impact is

[25] *Ibid.*, p. 32.

[26] John G. Gebhart, *The Economic Impact of an Industry Wide Strike: A Case Study of the 1949-50 Coal Strike*, Econ. Policy Div. Ser. No. 27 (New York, National Association of Manufacturers, 1950), p. 10. Bernstein and Lovell in a recent article also seem, in this author's opinion, to misinterpret the 1949 disputes record. See Irving Bernstein and Hugh Lovell, "Are Coal Strikes National Emergencies?" Ind. Lab. Rel. Rev., Apr. 1953, VI, 352-67. Since their article appeared after the present study had been completed, it cannot here be given extended consideration.

spurious, total production tends to take a level which would have prevailed even in the absence of the dispute.

The Concealed Growth of the Strength of the Offset Factor

One additional source of increasing strength in the offset factor must be brought forth into full view. The rate of fall in our regression lines was considerably less for the major dispute year segments of the 1942-1950 period than for Segment C of the earlier nine years. This matter, neglected until other aspects were developed, must now be explained. The real meaning of these differences in the rates of fall per million man-days is that in spite of the larger magnitude of disputes of 1942-1950, their detractive impact was considerably weaker than that of disputes in the earlier nine years. The most important reason for this is to be found in the enhanced power of the offset factor derived from the increased productivity per man-day. Some allowance has already been made for productivity changes. The segments used in calculation of our correlation coefficients were not only designed to group major dispute years into roughly comparable business cycle units, but also to get substantial uniformity in the productivity rates for each segment.[27] However, no effort was made to adjust man-day losses directly for variations in output per man-day.

Compression requires many omissions, but the record has been examined carefully state by state and year by year. Summarized, it shows that increased productivity per man-day since 1941 has been a product of two main forces: great expansion in use of mechanical loading equipment, and an enormous increase in surface mining. In 1935, only 13 per cent of underground production was mechanically loaded, but by 1941 this figure had risen to 41 per cent. Advances during the 1940's were at a slower rate, but by 1950, 68 per cent of deep mined coal was being loaded by machine.[28]

[27] As computed by the Coal Economic Branch of the Bureau of Mines the annual average tonnage productivity per man-day for each year of our segments was as follows:

A	1933	4.78	B	1936	4.62	C	1937	4.69			
	1934	4.40		1938	4.89		1939	5.25			
	1935	4.50		1940	5.19		1941	5.20			
D	1943	5.38	E	1942	5.12	F	1946	6.30	G	1949	6.44
	1945	5.78		1944	5.67		1947	6.42		1950	6.77
							1948	6.26			

[28] Charles James in a careful study concentrating principally on two Pennsylvania counties summarized the development thus: "Mechanical loading, which was of negligible importance before 1930, had risen in importance until, in 1948, roughly seven tons in ten produced underground were loaded wholly or partly by machine.

"The reduction in man-day requirements per ton, which was brought about chiefly by the growth of mechanical loading, permitted operators to keep wage-cost per ton from increasing as sharply as it might have done if wage rates had risen and man-day requirements had not been reduced." *Measuring Productivity in Coal Mining,* Research Rept. No. 13, Industrial Research Dept., University of Pennsylvania (Philadelphia, 1952), p. 68.

Important as has been this increased efficiency underground the still more significant technological change, for this study, is the increase in the proportion of strip-mined coal, from approximately 10 per cent of total tonnage in 1940, to almost 25 per cent in 1950. It is this shift which is the most significant single element accounting for the increase in average annual productivity per man-day. For in a general way it may be said that production per man-day by the strip mining process is from two to four times as great as in underground mining if outputs from underground and strip mines are compared in the same states where both mining methods are in use.

It is not only the proportionate increase in strip mining that we need to examine but the location of that increase. Although coal reserves are widely scattered, about 90 per cent of the total output comes from nine states east of the Mississippi. Among these are Illinois and Indiana, where strip mining got an early start. These two states were responsible for about 60 per cent of the total strip-mined tonnage in 1933 and have continued to place increasing reliance on this method of coal mining ever since. But while both have increased their own percentages of total state production from strip mines, the technological transformation in which they once had the lead has been copied in other states. The transformation began slowly, for as late as 1941 Illinois and Indiana still accounted for about 50 per cent of the strip tonnage. But the force of this technological transformation like a great stream pushing from what seemed to be the headwaters in Illinois and Indiana wound its way into Ohio and Pennsylvania during the 'thirties and then in the next decade meandered on into broader territory to include Kentucky and West Virginia. Thus, in 1950, these six states shared approximately 85 per cent of the national strip tonnage in the following proportions: Illinois and Indiana, 23 per cent; Ohio and Pennsylvania, 40 per cent; Kentucky and West Virginia, about 22 per cent. A review of the shifting of state positions during major dispute periods shows that it was Illinois, Western Kentucky, Ohio, and West Virginia that most frequently showed signs of temporarily improved positions. The fact that these too are areas in which there has been great new growth of strip mining since 1942, and that they are widely separated, has contributed to the strength of the current-transfer offset factor. For the high productivity of strip mining in these areas has increased their ability to neutralize the detractive impact of dispute time losses elsewhere, and their dispersed locations have made their output available to widely scattered consumers. This is one reason why the narrowing of the margin of unused capacity and the broadening of the orbit of unionism that occurred before 1942, did not have their full effect in weakening the power of the current-transfer offset factor.

This regeneration of the current-transfer offset factor occurred because a substantial portion of the new high productivity strip mining of the 1940's was outside the area of the major disputes of that period. To avoid oversimplification it is necessary to observe that it is not true that all strip mining operations have been insulated from the major dispute time losses of 1942-1950. Agreements of the U.M.W. have extended to all strip and underground mines of Indiana, as well as to strip and underground mines responsible for about 75 per cent of Illinois production, and disputes associated with renewals have interrupted mining in these states. But some of the Illinois mines under agreements with P.M.W. are strip mines. Moreover, many of the strip mines of Ohio, Kentucky, and West Virginia have been completely insulated from disputes concerning renewal of national U.M.W. agreements.[29]

But the great contribution which the increased productivity of strip mining has made is to the potency of the time-shift form of the offset factor. Here it has substantial influence throughout both unionized and unorganized areas. It is true, of course, that to the extent this increased productivity has appeared in areas directly affected by large disputes, it has meant that a given number of man-day losses may immediately produce a larger potential shrinkage in tonnage than would have been the case if labor productivity had remained constant. Also, however, this increased productivity has augmented greatly both the anticipatory and retroactive features of the time-shift offset factor. Because of this, even with a somewhat smaller labor force, the coal mines were able to speedily increase production before major dispute time losses were upon them, and return afterwards to higher levels of output more rapidly,[30] in the nine years of 1942-1950 than in the earlier period reviewed. This is the real reason why the calculated rates of fall

[29] Direct communication with the United Mine Workers on the significance of our state calculations resulted in the following statements: "We would concede that your observations, which indicate a significant shift in relative tonnage production of different states during periods of wage disputes, are essentially correct. It is quite true that production is increased in non-union mines during work stoppages. . . . In Ohio and Western Kentucky, there are some unorganized strip mines at the present time, but they do not produce any appreciable tonnage except during cessation of work by the United Mine Workers of America." Letter to the writer from U.M.W. official, dated March 28, 1952.

[30] For special confirmation of this point the author is indebted to Professor Harline of the University of Utah, who writes: "I think that your point that the growth of strip mining has aided the time-shift offset factor is a good one. . . . The simple fact that (underground mines) have to clear the blasted coal away *before* they can get in to make another cut . . . means that it is difficult to speed up the process or store coal underground. . . . In contrast the strip operator can uncover coal for blocks ahead and just let the coal sit there. His ability to do this is limited by the fact that over time the high walls tend to cave. . . . Nevertheless the environment is such that strip mining is still in a better position than underground." Letter dated February 5, 1953.

per million man-day losses after 1952 were distinctly lower than shown by the figures for Segment C of 1933-1941.

V. *The Theory of the Offset Factor in Perspective and The Total Coal Production-Disputes Pattern of 1933-1950*

The theory of the offset factor furnishes us with a clearer understanding of the impact of disputes time losses upon production than has been hitherto available. It gives precise indication of some important elements that must be examined in order to determine the full force of that impact, and so may furnish guidance for policy decisions. By first separating time losses occurring during periods of shrinking demand from those taking place when consumer demand requirements are either maintained or are expanding, the theory makes possible differentiation of the mere distributive impact of time losses from that which is really detractive.

Once the potentiality of a detractive impact has been identified, the different forms of the offset factor may then be examined. This leads to a recognition of the specific conditions that determine the current-transfer and those which make the offset factor take the form of time-shift. While the element of unused capacity is essential for the offset factor in both its forms, the power of current-transfer depends also upon the geographical area to which the dispute time loss may be confined and the degree of product substitution among the individual firms that make up the industry. But though unused capacity is equally essential, it is the duration of disputes that is of greatest supplemental importance in determining the power of the time-shift offset factor. If current-transfer is powerful enough to neutralize the impact of dispute time losses completely, the time-shift form of the offset factor becomes unimportant.

The applicability of the theory of the offset factor to any particular industry depends upon the extent to which these conditions are realized. The bituminous coal industry furnishes a case of close approximation to these essential conditions. Although the theory of the offset factor probably has much broader usefulness than merely to aid in measuring the impact of dispute time losses upon coal production, the possibility of wider application has still to be determined. However, even though the applicability of the theory should prove to be limited to the coal industry alone, its importance would still be substantial; for dispute time losses there easily constitute more than a quarter of the working time lost through labor disputes in American industry as a whole. Even in terms of its applicability to the coal industry, the theory of the offset factor at present merely opens a "little window" on the ground floor, poorly located and too small to furnish a complete view. Beyond our

present horizon lie the answers to important questions of the relation of dispute time losses to miners' wage incomes, to technological changes and employment, to prices for coal, and to coal consumption levels. It will require a larger second-story window to bring these into view.

However, looking at the eighteen-year production-dispute record of the bituminous coal industry from the vantage point of our ground-floor window we have observed a systematic pattern. There was clear evidence that prior to 1937 the impact of dispute time losses on production was easily neutralized by the offset factor in the form of current-transfer, and minor disputes of these years had no noticeable effect. For the later Segment C of our first nine-year period the power of current-transfer was reduced; but nevertheless, in combination with time-shift, it was strong enough to facilitate the continuous upward expansion in coal production.

The reduced power of the offset factor in its current-transfer form manifested itself in the much higher correlation coefficients between production and disputes time losses in the years following 1941. However, the reduction in the power of current-transfer was not as great as these figures suggest. The impossibility of separating the production-dispute record of the "captive" mines from that for the commercial mines tended to magnify the apparent extent of unionism. Hence, the area outside the scope of disputes in the commercial branch of the industry has always been a little larger than appears at first sight. Also great increases in productivity from strip mining, a part of which took place outside the area of major disputes, enhanced the power of current-transfer above that suggested by the calculated figures.

At least some of the large dispute time losses of the 1942-1950 period had no potentially detractive impact upon current coal production at all. This was somewhat true for the time losses of 1945 and certainly for those of 1949. Even the distributive impact of disputes of these years was probably greatly diluted by the regenerated strength which current-transfer derived from the growth of strip mining outside the area of disputes.

It was, however, the great power of the offset factor in its time-shift form which made possible the substantial mitigation of the detractive impact of disputes upon production during 1942-1950. This power grew stronger as current-transfer became more restricted. The potency of time-shift derived largely from the enormous capacity of the coal industry itself was further augmented by increased productivity, partly associated with improved technology underground, but more especially with the rapid development of strip mining. The net effect of the operation of the offset factor in both its forms was to make it possible for U.S. coal production to reach levels considerably above

those for earlier years, even while the amount of dispute time losses also was passing above the highest recorded magnitudes. So great was the output volume that it is extremely doubtful whether, taking the period as a whole, it would have been enhanced at all had there been no dispute time losses whatever. Certainly the claim that dispute time losses in the coal industry produce some kind of an equivalent fall in output simply is not true.

But the impact of disputes on coal production probably is not to be considered analogous to "a widow's cruse in a danaid jar." Rather the great productive capacity of the industry, even when confronted with large dispute time losses, makes it resemble the character of Ovid's miraculous pitcher which Philemon and Baucis found "retained its marvelous quality of being never empty when it was desirable to have it full."

THE BURDEN OF SOVIET TAXATION

By F. D. HOLZMAN*

The principal task faced by Soviet tax authorities is absorption of excess consumer (household) purchasing power generated by the very high rate of non consumption[1] expenditures normally undertaken by the state. The position of the household is particularly central in the Soviet economy because it comprises, with minor exceptions, the entirety of the private sector; since private industry has been virtually nonexistent in the U.S.S.R. for many years, the burden of the state's economic activities must be borne primarily by the household. In this paper an index is presented of changes in the magnitude of this "burden" from 1925/26 until 1950, excluding the war years. Two time series are constructed: (1) consumer money income and (2) taxation (in money) of the consumer; the ratio of (2) to (1) is the average rate of taxation.[2]

The average rate of taxation is one measure of the "burden" of money taxation; this is the definition used by Shirras and Rostas in their study of British taxation.[3] This is the simplest quantitative formulation of the "burden" and is deficient in several respects. First, the extent of the "burden" depends in part on the nature of the public expenditures the taxes are designed to finance. Taxes to finance programs of social security, education, and garbage collection may constitute less of a burden than those used to finance defense, foreign assistance, or long-term investment programs, since the benefits received

* The author, assistant professor of economics at the University of Washington, made this study during the tenure of a fellowship at the Russian Research Center, Harvard University; the assistance of that organization is gratefully acknowledged. He is also indebted to Professor Alexander Gerschenkron, Raymond P. Powell, and Dr. Gregory Grossman for many helpful comments. This paper is part of a larger study of the Soviet tax system which is to be published by the Harvard University Press in 1954.

[1] Nonconsumption is defined here to include all economic activities from which the household receives money income (including transfer payments) but which do not result in output of goods or services for which the household can spend its income. It includes, for example, expenditures on investment in fixed and working capital, military expenditures, state expenditures on health and education, etc.

[2] It should be noted that we include neither income in kind nor taxation in kind explicitly in our series because these cannot be estimated for the period in question with any degree of success (*cf.* fn. 24).

[3] G. F. Shirras and L. Rostas, *The Burden of British Taxation* (New York, 1943), p. 1.

from the former are more immediately perceivable by the taxpayer and to a greater extent may substitute for his own expenditure. Secondly, the psychological impact of a tax depends to a large extent on the form in which the tax is levied; a commodity tax is probably less burdensome than an income tax;[4] and a loan, even though it may never be repaid, may be less burdensome than either of the other two because of the expectation that it may be repaid. Thirdly, the psychological impact of the burden of taxation as we have defined it would depend not only on the average rate of money taxation, but also on the marginal rates and on the absolute levels of income and taxation in *real* terms. That is to say, a nation with a high per capita real income would probably find it less burdensome to pay 20 per cent of its income in the form of taxes than a nation with a low per capita real income. These are but a few of the many factors, economic and institutional, which would cause a divergence between the true psychological burden of taxation and the monetary burden which we will attempt to estimate.

I. *General Methodological Approach*

Measurement of Consumer Money Income

Two independent methods of measuring consumer money income are available to the research worker. The first, and most direct approach, is to add up all sources of income paid out to households over the course of a year. The second approach is to total up household expenditures including changes in savings. Theoretically these two methods should give identical results and a choice made between them should be on grounds of statistical convenience.[5]

Consumer money income will be estimated here from household expenditures. In general it appears more feasible to use this approach, in preference to the income approach, for an extended series of estimates[6] although for certain specific years this may not be the case. The princi-

[4] *Cf.* F. D. Holzman "Commodity and Income Taxation in the Soviet Union," *Jour. Pol. Econ.*, Oct. 1950, LVIII, 425-33.

[5] American economists who have worked on Soviet national income have used both of these approaches. Baran built up his estimates for 1940 for the household from the income side (Paul Baran, "National Income and Product of the U.S.S.R. in 1940," *Rev. Econ. Stat.*, Nov. 1947, XXIX, no. 4); Bergson worked basically from the outlay side in making his estimates for 1937 (Abram Bergson, "Soviet National Income and Product in 1937," (*Quart. Jour. Econ.*, May and August 1950, LXIV, nos. 2, 3); N. Margolin, a Soviet economist, constructs hypothetical estimates of both income and expenditure and discusses, extensively, the methodological problems (N. S. Margolin, *Voprosy balansa denezhnykh dokhodov i raskhody naseleniia* [Problems of the Balance of Receipts and Expenditures of the Population] Moscow, 1940). Although Margolin's estimates are not designated as representing any particular year, they are quite close to figures for 1935.

[6] Gregory Grossman first suggested to me the feasibility of the expenditure approach.

pal stumbling block to the income approach is ambiguity in Soviet data on the total payroll or wagebill of workers and salaried employees.[7] Since the payroll is the largest single receipts item and constitutes about two-thirds of consumer money income, serious doubts would immediately be cast on any income time series based on payroll statistics which did not first explain the observed ambiguities in its magnitude. Retail trade turnover, on the other hand, the largest single expenditure item, is unambiguously available for every prewar year with the exception of 1931. With regard to other receipts and expenditure categories, the difficulties seem to be about equally distributed; the advantage therefore remains with the expenditure approach.

Consumer expenditure categories are considered in greater detail below. The general problems in measuring taxation of the consumer will now be considered.

Defining Taxation of the Household

The approach used in constructing our *principal* series of money taxes on the consumer (Series I to III below) is unorthodox in terms of conventional notions of taxation in capitalist countries; supplementary series (IV to VI) based on more conventional definitions are presented later (Section V).

The unorthodoxy of the present definition stems from the following assumptions:

1. The incidence of all indirect taxes included in the price of all consumers' goods is on the household. This applies to the turnover tax (a sales tax) and to the social insurance markup (a payroll tax).
2. Not only the profits tax paid by state enterprises, but the retained profits of these organizations as well, are considered to be taxes on the consumer. Income taxes paid by the collective farms and other cooperatives are treated similarly.
3. The purchase of government bonds by the population is considered to be a form of taxation.

The first two assumptions are based on the fact, mentioned above, that in the U.S.S.R. there are only two economic sectors, the state and the household; a private industrial (agricultural) sector of consequence no longer exists. Therefore, all taxes included in the price of consumers' goods sold are necessarily paid by the consumer and cannot be shifted backward.[8] Retained profits of state enterprises are no differ-

[7] For discussion of this problem see: A. Bergson, "A Problem in Soviet Statistics," *Rev. Econ. Stat.*, Nov. 1947, XXIX, 234-42; and M. Dobb and H. Schwartz, "Further Appraisals of Russian Economic Statistics," *ibid.*, Feb. 1948, XXX, 34-42.

[8] This is true in an *ex post* sense: all taxes actually paid to the state are paid by the household since there is no other sector to pay them, *i.e.*, the taxes cannot be shifted

ent from profits taxes from the point of view of the consumer: both are markups over explicit costs of production; both constitute financial counterparts to state investment. These two assumptions amount to including in the category, taxes on the household, the total receipts of state enterprises minus their explicit commercial costs. Explicit commercial costs of Soviet enterprises typically consist of payments for labor, raw materials and intermediate products, depreciation, and interest on short-term loans. The following real costs of production are excluded: the return to capital (since the bulk of Soviet investment is financed by interest-free grants from the budget), rent,[9] depletion costs, and depreciation which is typically understated as an explicit cost.[10]

Taxes, as we have defined them implicitly include, therefore, the above elements of factor cost. Our definition of indirect tax would be conceptually much more satisfactory if it were possible to deduct the above-mentioned *implicit* costs from the Soviet markup over commercial cost thereby separating more accurately the factor cost and tax elements in price. This would be difficult to do with any degree of authority since no method has been devised for approximating the value of any of these charges. Baran has assumed that the retained profits of state enterprise represent return to capital;[11] Bergson has assumed that the turnover tax is the only commodity tax and that the remaining markup represents the above-mentioned implicit costs of production.[12] These methods are rejected here because the various elements constituting the markup are arbitrary in size and, in some cases (*e.g.*, retained profits and profits tax) tend to vary in a nonsystematic manner from year to year.[13] The method adopted here provides more consistent results over time. Furthermore, there is not much evidence to indicate that retained profits and other unorthodox tax categories bear a functional relationship to the real economic categories they have been taken to represent. Finally, while the costs of capital, deprecia-

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backward to private individual recipients of profits income. *Ex ante*, the state may attempt to levy higher taxes on commodities than the household is willing to pay in which case the amount of taxes collected will be less than plan; in effect, the consumer will have shifted the taxes backward to the state. However since we deal with *actual* tax collections, the *ex post* concept is the relevant one for our purposes.

[9] *Cf.* Holzman, *op. cit.*, pp. 430-31.

[10] Bergson, "Soviet National Income and Product," p. 415. Understatement is due to calculating depreciation in terms of original cost with no upward adjustment for the effect of inflation on replacement cost; and to the fact that the Soviets typically overestimate the life of their fixed assets.

[11] Baran, *op. cit.*, p. 230.

[12] Bergson, "Soviet National Income and Product," p. 434.

[13] *Cf.* Table II for profits figures.

tion (part), depletion, and rent may constitute a moderate share of the total of factor costs in the consumers' goods industries, they can be no more than a very small fraction of the total of indirect taxes[14] and even a smaller part of total taxes, and do not substantially affect our estimates.

Our assumption that the purchase of government bonds by the public is a tax is based on the following characteristics attending Soviet bond sales. First, purchases are, at best, quasi-compulsory; very strong pressures are brought to bear on the population to invest from two to four weeks income per year in government bonds, an abnormally large amount in view of the low standard of living of the population. Second, by the so-called conversions of 1930, 1936, 1938, and December 14, 1947, the Soviet authorities arbitrarily lowered interest rates, extended maturity dates, and reduced the principal value of outstanding Soviet bonds (by ⅔) so that the public has, until now, recovered only a very small fraction of its investment—and this amount has been seriously depreciated by greatly increased commodity price levels. Economically, sales of Soviet bonds fall somewhere between being a form of taxation and a truly voluntary sale of bonds; in my opinion they have been, until now, more accurately classified as taxes.[15]

These assumptions underlie the first three estimates of the burden of taxation. The estimates may therefore be considered somewhat on the high side. For those who prefer less stringent assumptions, a second trio of estimates have been prepared utilizing more conventional notions of taxation (Section V).

Measurement of Taxation of Household

Although on the surface it appears quite simple to construct a time series of taxes on the consumer because Soviet budgetary data have been relatively accessible, the data are quite imperfect for our purposes.

The first problem arises because the cost of the consumer bill of goods is distorted by subsidies to cover losses in the production of consumers' goods (as well as in the production of producers' goods and raw materials which are subsequently used to produce consumers'

[14] Hodgman says: "Although it is theoretically desirable to include entrepreneurial-type profits, rent, interest, and the wage elements included in 'other money outlays' in value-added by a given industry, . . . the omission of these . . . elements . . . is judged to have no significant effect . . . since (they) . . . are small relative to salaries and wages and payroll taxes." (Donald R. Hodgman, "A New Production Index for Soviet Industry," Rev. Econ. Stat., Nov. 1950, XXXII, 335).

[15] This position is defended at greater length in my forthcoming book. *Cf.* also: Carl Shoup, "Forced Loans," *Curbing Inflation through Taxation* (New York, 1944), pp. 127 ff. Professor Shoup discusses ways of separating out the tax element in forced loans.

goods). The major case in point is the machine tractor station complex (MTS).

The receipts of the MTS valued at the low obligatory delivery prices have typically amounted to less than 25 per cent of their expenditures thereby involving a monetary subsidy from the state. In addition, part of the regular operating subsidies paid to enterprises by the state lower the cost of consumers' goods either directly or indirectly. It may be contended that it is incorrect to designate as a levy on the consumer a tax which finances a subsidy on consumers' goods,[16] since the tax simply substitutes for the true cost of the commodity. If this argument were accepted, consumers' goods subsidies would have to be subtracted from taxes collected from the consumer.

On the other hand, it may be contended that to the extent that consumers' goods are subsidized they take on the character of government services—become part of the nonconsumption expenditures of the state as we have defined them—and must be treated in the same manner. In this case, the subsidies would constitute a legitimate part of the tax burden as we have defined it. There would seem to be two significant differences, however, between services typically underwritten by the state and the subsidies under discussion.

First, the consumers' goods products which benefit from subsidies are commodities which are generally purchased at market price by consumers and are rarely offered to the population free of charge, whereas it is not uncommon for some social services to be distributed free of charge. Second, the subsidies on consumers' commodities are not the result of Soviet social policy but are rather a by-product of (1) the peculiar accounting relationship between the state and the MTS and, (2) an economic policy designed to achieve cost-price stability. For these reasons subsidies on consumers' goods will not be considered part of the tax burden.[17]

No adjustment is required for subsidies to producers' goods industries. The total cost of producers' goods should be included in the value of nonconsumption. To the extent that subsidies to producers' goods industries undervalue such output, the cost of nonconsumption is undervalued. Since the sum of the subsidized cost of producers' goods plus the subsidies is equal to the full cost of output, the tax on the

[16] For example, suppose that a loaf of bread originally sold by the state for two rubles received a one ruble subsidy which was paid for by the consumer in the form of a turnover tax. The consumer would still be paying two rubles for the bread but one ruble would be in the form of a tax and one ruble would be the subsidized cost.

[17] One further argument should be noted. It could be claimed that the MTS are not, in fact, subsidized, but that the monetary subsidy is simply a result of undervaluing, by the use of obligatory delivery prices, the receipts in kind of the MTS. Unfortunately, we do not know the precise extent of the undervaluation. The reader persuaded by this argument can ignore the subsidy adjustment attempted below.

consumer should include payments required to finance both of these categories of state expenditure.

In the statistical study presented below, no adjustment for subsidies to consumers' goods industries has been made in the principal series presented (Series I and II) because the data are not available. For a limited number of years an attempt is made, however, to show the effect on the tax burden of adjusting for such subsidies (Series III).

The second major imperfection in our data exists because a small percentage of the major indirect taxes which appear in the Soviet budget do not fall on the consumer but are levied on producers' goods and to some extent on consumers' goods which are not purchased by the population.[17a] These can in no sense be considered a burden on the consumer but constitute simply a bookkeeping transaction within the state sector. It is impossible to separate out precisely these two categories of indirect taxes. Nevertheless there is enough information to make some reasonable estimates after 1931, and this is done.

A further problem is created by the Soviet practice of collecting the turnover tax largely at the wholesale level, *i.e.,* before the commodities are bought by the household. If, for example, inventories on which the turnover tax is paid, are increasing (decreasing), the rate of tax on the household would be overstated (understated). No attempt is made here to correct for the lag between receipt of tax by the budget and payment by the population.

II. *Some Specific Problems and Assumptions in Measuring Income and Taxation*

In addition to the general methodological problems discussed above, many specific problems arose in constructing the estimates presented below, some due to absence of data and others to imperfections in the data. These will now be considered. Details of the computations and sources of data are presented in an appendix to the paper.[18]

Consumer Outlay Categories

A. Retail trade turnover: Retail trade turnover is the largest category of consumer outlay. It includes all commodities valued at market price which are sold by state and cooperative retail stores and on the collective farm market. Data are available for the whole prewar period under consideration (1925/6-1940). No data are available, however, for 1948-50. The estimates for these years were complicated and are presented in the appendix.

[17a] For example, the profits and turnover taxes on commodities purchased by the Ministry of Armed Forces.

[18] Available upon request from the Russian Research Center, Harvard University, Cambridge, Massachusetts.

The data have to be adjusted for the fact that not all of retail trade sales are to consumers. Bergson (quoting Margolin) points out that 11.5 per cent of state and cooperative store turnover and 10 per cent of collective farm market turnover constitute sales to institutions rather than to the household.[19] The official figures for retail trade turnover are therefore reduced by 11 per cent for all years under consideration. This assumption seems to be in accord with independent data published for the period 1925-30; it is not known whether the percentage of institutional trade in the retail trade turnover has changed in the postwar period.

B. Consumer services: Consumers make substantial outlays for services such as rent, utilities, passenger transportation, amusements, etc. Bergson (*ibid.*), quoting Margolin, indicates that in 1934 and 1938, consumer outlays for services amounted to slightly more than 12 per cent of their outlays for goods. Independent data for 1925-30 give the same percentage. This percentage is assumed valid for the postwar period also, although there is no evidence to either support or refute the assumption.

C. Purchases of government bonds: For most years it was possible to obtain directly figures for sales of bonds to the public. For some years, however, only the total increase in the national debt was available. This includes, in addition, investment of the free reserves of the savings banks, surplus funds of the state insurance organization (*Gosstrakh*), and other minor investors. Since the percentage shares of these different investors in new issues has been fairly constant over time, the purchases by the population can be estimated, without large error, for those years in which only the total loan figures are available.

D. Trade union and other dues: Bergson[20] estimates that expenditures by the population on dues in 1935 were 1 per cent of the total wage bill. Since wage bill data are available for the prewar period, the 1 per cent relationship is used to estimate a figure for dues for each year from 1925 to 1940. Wage bill figures are not available for the postwar period. Social insurance collections, which are a function of the wage bill, are available for all years, however, and are used to estimate trade union and other dues for 1948-50. In 1940, trade union and other dues were 18.8 per cent of the social insurance collection; this ratio is applied to 1948-50. The correctness of the estimate depends on the assumptions (1) that the ratio of trade union and other dues continued to be 1 per cent of the wage bill in the postwar period and (2) that social insurance receipts were a constant percentage of the

[19] Bergson, "Soviet National Income and Product," Appendix, p. 9.

[20] *Ibid.*, p. 10.

wage bill from 1940-50. Both of these assumptions appear to be reasonable; in any case the item is so small that even a large error would have virtually no effect on the results.

E. Purchase of shares in cooperatives: Data for this item are not available after 1930. Since it is small, extrapolation was not attempted and figures are omitted after 1930.

F. Taxes: Direct taxes on the population are a form of consumer outlay and must be included in our total consumer expenditure figure. Indirect taxes paid by the population are included implicitly as part of the retail trade turnover.

G. Deposits in savings banks: The household deposits a small part of its net income each year in savings banks. The increase in savings bank deposits over the year represents another form of income disposal by the household. Data on savings deposits are available for the entire period under consideration.

H. Cash holdings: If consumer outlay is not equal to consumer income, the difference is reflected in a change in the amount of cash held by the household. Therefore in order to estimate consumer income from the outlay side, it is necessary to add the change in cash balances held by the population to consumer outlay. This is equivalent to looking upon the change in cash balances as another way of disposing of income.

Consumer money income is assumed to have been increased (decreased) each year by the increment (decrement) to currency in circulation. The assumption is made that the entire increment to currency in circulation is held by the population.[21] Changes in the amount of currency in circulation are available for all years through 1937, and for 1940. For these years changes in currency in circulation are observed to have been correlated with changes in the average wage rate, the national wage bill (payroll), and the value of retail trade turnover. Using these relationships, estimates were made for 1937-1939 as well as for 1948-1950 (where our estimates of the value of retail trade turnover alone served as a rough guide).

Taxation of the Consumer

Estimates of consumer taxation are fairly straightforward with the exception of the two adjustments mentioned above, *viz.*, (a) to allow for indirect taxes which do not fall on the consumer and (b) to deduct subsidies on consumers' goods from total taxes on the consumer. The

[21] This is a reasonable assumption. Enterprises and organizations hold virtually no cash in their tills with the exception of paydays when the local branch of the state bank supplies enough cash to meet the payroll. Cash received by enterprises from sales to the population is deposited with little delay in the bank. Almost all inter-enterprise transactions are financed by bank account transfers rather than in cash.

general methods used will be described briefly below. Details are contained in the appendix.

A. Turnover tax and profits: For the period 1935-41, turnover tax receipts and profits are broken down, in Soviet sources, by branch of industry and commissariat. These data are used to make rough estimates of the percentages originating in consumers' and producers' goods for these years. The results are extrapolated for years in which data are unavailable.

B. Social insurance and other indirect taxes: The breakdown of the social insurance markup by consumers' and producers' goods industries is based on Bergson's estimates for 1937.[22] The same relationship is used for other indirect taxes. This is an extremely crude expedient but no better method could be found.

Other indirect taxes include such items as customs receipts, tax on services, tax on cooperatives, local taxes on industry, and state income from timberlands. Detailed figures for each item are not available for all years; however since total other indirect taxes remained a fairly constant percentage (3 per cent) of budget income in the years for which the data are complete, this ratio was used to fill in the gaps.

C. Subsidy adjustments: Subsidies are subdivided into MTS subsidies and subsidies granted directly to enterprises operating at a loss.

The MTS subsidy for 1938-40 can be estimated directly from official data; estimates for 1937, and 1948 to 1950 were based on 1938-40 relationship and other scattered information (see appendix).

Direct subsidies to industry are derived as a residual figure. From Soviet sources it is known that the budget expenditure category "financing the national economy" includes the following expenditures: investment in fixed capital, investment in working capital, gross expenditures on the MTS, "operating" expenditures,[23] and subsidies. Estimates for the first three of these categories and for the total (financing the national economy) are available for the nonwar years since 1937. A residual comprising subsidies and operating expenditures can therefore be estimated. As operating expenditures are generally considered to be small, it is assumed that the entire residual is subsidies.

Most MTS activity is devoted to the production of food and industrial crops eventually purchased by the household. Therefore in making the deduction from taxes, it is assumed that two-thirds of the MTS subsidy applies to commodities purchased by the consumer; this amount is deducted.

[22] Bergson, "Soviet National Income and Product," Appendix, p. 11.

[23] Operating expenditures (*operatsionnye raskhody*) are expenditures on training workers, scientific research, and other projects administered by enterprises but not part of the normal operating expenses of production.

Soviet literature clearly indicates that the bulk of the general operating subsidies applies to nonconsumers' goods products. However, since subsidies to the coal industry and other raw materials and producers' goods affect the cost of consumers' goods, these should be taken into account. Accordingly, it is assumed that 20 per cent of general subsidies affect consumers' goods costs and are deducted from taxes. Not too much faith is placed in these adjustments and they are not included in our main series; crude as they are, however, the results achieved are not without interest.

Further Considerations

Soviet budget data are originally presented in plan form for the current year; in the subsequent year preliminary estimates of the actual results are published; another year later the final results are published. This is also true of most other financial magnitudes. As far as possible final and preliminary estimates were used; in many cases, however, planned figures were the only ones available and these were used. No distinction will be made between the preliminary and final estimates since they rarely differ by more than a fraction of one per cent; planned figures will be so designated (in the statistical appendix) and must be accepted with reservations.

III. *Statistical Results: "Burden" of Taxation*

Estimates of consumer money income (by outlay) for the periods 1925/6-40, and 1948-50, are presented in Table I. Sufficiently reliable data were not available for the period 1941-47. The estimate for 1931 probably understates consumer income by 15-20 per cent because of the huge illegal trade which occurred in this year and which is not reported in the retail turnover figure.

Three series of estimates of consumer taxes are presented in Table II. Series I, which covers the entire period from 1925/6-1940, and 1948-50 is unadjusted for (1) the turnover tax, profits, and other indirect tax data presented in the budget which are not paid by the consumer and (2) subsidies on consumers' goods. This series consequently overstates taxation of the consumer. Series II is adjusted for the taxes not paid by the consumer; the adjustment is not attempted for the period 1925/6-1929/30. Series III attempts an adjustment for subsidies to consumers' goods industries for the years after 1937. These latter two series, and particularly Series III, give a much closer approximation than Series I to the actual average rate of money taxation of the consumer; on the other hand, Series I enables us to observe the dynamics of tax policy in the New Economic Policy and First Five Year Plan periods.

Table I.—Soviet Consumer Money Income (Outlay) 1925/6–1950
(billions of rubles)

	1925/6	1926/7	1927/8	1928/9	1929/30	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1948	1949	1950
Retail sales, adjusted	10.4	12.2	13.4	15.2	16.5	24.4	42.5	54.6	67.5	85.6	108.8	127.8	146.3	172.1	192.5	357.0	401.0	449.0
Consumer services	1.1	1.4	1.7	1.8	2.1	3.5	5.7	7.4	9.1	11.3	13.9	15.9	17.7	20.7	23.1	42.8	48.1	53.9
Trade union dues	.1	.1	.1	.1	.2	.3	.4	.5	.6	.7	.9	1.1	1.2	1.4	1.6	3.0	3.3	3.6
Shares in coops	0	0	.1	.1	.2	—	—	—	—	—	—	—	—	—	—	—	—	—
Direct taxes	.6	.9	1.1	1.1	1.1	1.6	2.4	3.5	3.8	3.2	3.8	4.0	5.1	7.0	9.4	33.2	33.7	35.8
Purchases of government bonds	0	.1	.3	.1	.7	1.6	2.4	3.2	3.4	3.8	3.5	4.3	6.1	6.7	9.2	20.3	23.5	26.4
Increment in savings	.1	.1	.1	.2	.2	0	.2	.2	.5	.8	1.1	1.0	2.0	.6	.2	1.5	2.6	1.5
Increment in cash holdings	.2	.3	.4	.7	1.7	1.3	2.7	−1.6	.9	2.0	1.6	1.5	1.6	1.6	0	3.0	3.0	3.0
Total	12.5	15.1	17.2	19.3	22.7	32.7	56.3	67.8	85.8	107.4	133.6	155.6	180.0	210.1	236.0	460.8	515.2	573.2

For sources and methods, see appendix (fn. 18).

Table II.—Money Taxation of Soviet Consumer 1925/6–1950
(billions of rubles)

	1925/6	1926/7	1927/8	1928/9	1929/30	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1948	1949	1950
Turnover tax	—	—	—	—	—	11.7	19.6	27.0	37.6	52.2	65.8	75.9	80.4	96.9	105.9	247.3	245.5	236.1
Craft and excise taxes	1.3	1.9	2.2	2.9	4.6	—	—	—	—	—	—	—	—	—	—	—	—	—
Profits	1.2	1.8	2.4	3.3	5.4	6.0	6.6	7.3	6.4	7.8	14.2	16.9	15.7	26.3	32.0	39.3	69.6	65.5
Other indirect taxes	.6	.6	.6	.8	1.3	1.1	1.1	1.3	1.5	2.1	2.7	3.3	3.8	4.6	5.4	11.6	12.9	13.1
Direct taxes	.6	.9	1.1	1.1	1.1	1.6	2.4	3.5	3.8	3.2	3.8	4.0	5.1	7.0	9.4	33.2	33.7	35.8
Purchases of government bonds	0	.1	.3	.1	.7	1.6	2.4	3.2	3.4	3.8	3.5	4.3	6.1	6.7	9.2	20.3	23.5	26.4
Social insurance	.8	.9	1.0	1.2	1.4	2.2	3.6	4.3	5.7	7.0	8.9	6.6	7.2	7.6	8.5	16.2	17.5	19.0
Total I	4.5	6.2	7.6	9.4	14.5	24.2	35.7	46.6	58.4	76.1	98.9	111.0	118.3	149.1	170.4	367.9	402.7	395.9
Adjust for non-consumption tax	—	—	—	—	—	4.6	7.0	8.7	10.5	11.6	18.6	22.0	20.4	24.9	28.9	50.4	54.3	52.2
Total II	—	—	—	—	—	19.3	28.7	37.9	47.9	64.5	80.3	89.0	97.9	124.2	141.5	317.5	348.4	343.7
Adjust for subsidies	—	—	—	—	—	—	—	—	—	—	—	6.4	6.8	8.9	8.0	19.7	19.0	15.6
Total III	—	—	—	—	—	—	—	—	—	—	—	82.6	91.1	115.3	133.5	297.8	329.4	328.1

For sources and methods see appendix (fn. 18).

Dividing each of the three taxation series by consumer income gives estimates of the average rate of money taxation. These are presented in Table III.

In the succeeding discussion of these ratios, the reader is cautioned to keep in mind that:

(a) Series I is not an actual rate of taxation but rather an index of the movement in the rate of taxation over time. Series II and III are better approximations of the actual rates of money taxation.

(b) These series do not include income in kind but do include part of taxation in kind. This leads to some overstatement of the average rate of taxation.[24]

(c) Many of the estimates upon which these series are based are crude.

IV. *Burden of Taxation: The United States and Soviet Union Compared*

The sheer size of the Soviet tax burden is the most striking result of the calculations summarized in Table III. That more than half, at times almost two-thirds, of personal income, should return to the state in the form of taxes is indeed revealing with regard to the importance of state activities in the Soviet economy. A perspective on the significance of the Soviet rate of taxation can be gained by comparing it with

[24] Taxation in kind takes the form of compulsory deliveries to state and cooperative procurement agencies by collective farms and individual farmers of a specified part of their crops at very low prices. These prices are a fraction of the retail price at which the state resells the same commodities to consumers and do not even cover cost of production. When the state resells these commodities, the difference between the cost to the state (procurement price plus the costs of processing and distribution) and retail price is usually siphoned into the state budget in the form of turnover tax. The portion of the turnover tax which is collected by virtue of a procurement price below cost of production is the monetary equivalent of part of the tax in kind. Another part of the tax in kind is, of course, invested directly by the state and is not reflected in the money tax statistics.

Bergson estimates consumption of farm income in kind to have amounted to 30 billion rubles in 1937 ("Soviet National Income and Product," p. 214). My own estimate for the tax in kind on grains in 1937 is 15 per cent; if this figure is assumed to be representative of all agricultural commodities in 1937, income in kind before tax is estimated to have been about 35 billion rubles. To this must be added 2.5 billion rubles in army subsistence (*Ibid.*). Thus total household income, including income in kind, is 37.5 billion rubles greater than our estimate of consumer money income (Table I), or 193 billion rubles. Taxes as computed in Table II are 43 per cent of total household income. However, as we noted above, taxes must also be increased to take into account that part of the tax in kind not reflected in the turnover tax. This would probably increase the average rate of tax by 3 or 4 points. Thus, for 1937, our estimate (Table III) of the average rate of taxation is probably 6 or 7 points higher than the true rate of taxation (in money and in kind). The adjustment for most other years would not be so great: because of the excellent harvest in 1937, the tax in kind was exceptionally small (discussed in Ch. 7 of my forthcoming book).

the rate of taxation in some western nation, and this will be attempted below.

TABLE III.—AVERAGE RATE OF MONEY TAXATION 1925/6–1950

(Per Cent of Consumer Income)

	1925/6	1926/7	1927/8	1928/9	1929/30	1931	1932	1933	1934
I	36.0	41.1	44.2	48.7	63.9	(72.2)	63.4	68.7	68.1
II						(57.2)	51.0	55.9	55.8

	1935	1936	1937	1938	1939	1940	1948	1949	1950
I	70.9	74.0	71.3	65.7	71.0	72.2	79.8	78.2	69.1
II	60.1	60.1	57.2	54.4	59.1	60.0	68.9	67.6	60.0
III			53.1	50.6	54.9	56.6	64.6	63.9	57.2

Sources: Derived from Tables I and II.

Because of the institutional differences between the Soviet Union and capitalist nations many consumer outlays which would not be included in taxes have to be included in this category in the case of the Soviet Union. For this reason the estimates of the average rate of taxation of the consumer computed in this chapter cannot be meaningfully compared with similar computations for other countries. In order to facilitate comparison, an attempt will be made to bridge the institutional gap, although the significance of such a comparison is admittedly very limited.

The procedure will be to estimate the total of taxes (*i.e.*, federal, state and local) on the consumer in the United States, defining tax on the consumer in the same way as it is defined in the Soviet Union. Thus, included in our total of taxes on the consumer will be the following unusual aggregates: purchases of government bonds by the public; the annual contribution to social insurance which is assumed to be entirely passed on to the household; undistributed corporate profits (because retained profits of Soviet industry were considered a tax) and sale of corporate securities to the population for purposes of financing new investment. The incidence of indirect taxes on business enterprises is assumed to fall entirely on the consumer. The estimates for the United States are presented in Table IV.

We see that the rate of taxation in the United States for the years 1940 and 1949 is less than half that in the Soviet Union, even when the United States' data are structured in accordance with Soviet institutional conditions. The difference between the Soviet and U.S. rates

reflects the much higher rate of nonconsumption expenditures in the U.S.S.R. The psychological burden of the taxation in the U.S.S.R. is undoubtedly greater, relative to the United States, than the figures would indicate because of the much lower level of real national income in the U.S.S.R.; this effect would tend to be offset, to some extent because the Soviets have never experienced higher standards of living,

TABLE IV.—AVERAGE RATE OF TAXATION IN THE UNITED STATES, 1940 AND 1949

(Billions of Dollars)

	1940		1949	
	Soviet Framework	Western Framework	Soviet Framework	Western Framework
A. Personal Income[a]	79.0	78.3	208.3	206.1
B. Taxation of household				
Direct taxes	2.6	2.6	18.7	18.7
Indirect taxes	10.0	10.0	21.3	21.3
Purchases of government bonds	.5		4.3	
Social Insurance	2.3		5.7	
Undistributed corporate profits	2.4		9.8	
Sales of new corporate securities[b]	.6		4.6	
Total taxes (B)	18.4	12.6	64.4	40.0
Average Rate of Taxation (B÷A)	23.3	16.1	30.9	19.4

Sources: *Treasury Bulletin*, published monthly by the United States Treasury Department; *Survey of Currency Business*, published monthly by the United States Department of Commerce.

[a] Each American worker pays, out of his own gross wage, part of the social insurance contribution made in his name. Since we view the social insurance contribution as a tax in the Soviet framework, we consider the workers' contributions an addition to income. This accounts for the difference between personal income figures for each year.

[b] Sale of new corporate securities does not include securities which were issued for the purpose of refunding previously issued securities.

because so large a part of their income is taken away in the form of higher prices rather than as direct levies upon income,[25] and because their marginal tax rates appear to be relatively low.

V. *Alternative Measurements of the "Burden"*

The burden of Soviet taxation as computed above is based on a rather arbitrary definition of what constitutes a tax on the Soviet population. For this reason, three other measurements of the average rate of taxation will be presented and briefly discussed; the first two constitute an approximation to measuring the Soviet burden of taxation in a capitalist institutional framework.

[25] *Cf.* Holzman, *op. cit.*, pp. 425-27.

The rates of taxation presented in Table III are on the "high" side. For reasons discussed above, certain elements of the Soviet cost-price structure have been considered as taxes although they contain elements of factor cost. For example, profits have been considered a tax rather than a return to capital or as a reward for exceptional entrepreneurial ability. And the social insurance markup has been considered a tax when a case could be made for treating it as an addition to wages. We have also treated sales of government bonds to the population as a tax although such sales should be classified somewhere in between taxes and "truly voluntary" sales of government bonds. Therefore, we present below some alternative estimates of the burden of Soviet taxation, leaving the reader to his own preference.

In the first alternative estimate, both sales of government bonds and the social insurance markup are eliminated from the total of taxes as computed in Series II of Table II. The resulting figures, divided by total income, are designated Series IV in Table V below. If the reader desires to add the subsidy adjustment of Series III, this can be approximated roughly by simply deducting from Series IV, the difference between Series II and III (in Table III).

In the second estimate, retained profits are added to sales of government bonds and the social insurance markup; and all three items are deducted from the total of taxes (II) and divided by total income. The resulting ratio is designated Series V.

The third modified series (VI) is conceived in terms of a very crude benefit theory of taxation. Budget expenditures on education and health services are deducted from the total of taxes on the ground that the household benefits directly from these expenditures in contrast to other budget expenditures (investment in the national economy, defense, administration, etc.) which either do not benefit the household directly, or at all. In addition, transfer payments (*e.g.*, social security, social insurance,[26] subsidies to mothers, and the debt service) are removed from both the income and tax series. Although taxation to finance transfer payments is not without its psychological burden, the impact of such taxation is certainly offset in part by the distribution of the various transfer payments.[27]

[26] Social security includes pensions and other assistance, upkeep of invalid homes, rehabilitation of injured workers, etc. Social insurance includes insurance for sickness, unemployment and old age.

[27] One justification for this approach is that the Soviet government does finance a relatively large program of social services (educational, medical) and transfer payments. Objections can be raised against the deduction of budget expenditures on education from taxation. It may be contended that a part of these expenditures cannot be considered to benefit the population directly since it serves to finance communist propaganda, the press,

In this series (VI), as in the case of Series IV and V, a rough adjustment for subsidies to consumers' goods industries can be made by the reader. The three new series are presented in Table V attached.

It can be seen in Table V that the average rate of taxation is very high even after the above-mentioned adjustments are made. Deducting the social insurance markup and sales of government bonds from total taxes (IV) reduces the burden by only seven to eight percentage points on the average. Deducting, in addition, the retained profits of state enterprises (Series V) reduces the burden by about another 3 points on the average. With all these deductions, the average rate of taxation exceeds 46 per cent in the postwar period.

The burden is reduced by as much as one-third to two-fifths when education and health services are deducted from taxes, and transfer payments are removed from both income and taxes. The average rate of tax, even with this generous interpretation, still ranges between 35 and 50 per cent of income.

It is of interest to attempt to answer the question: to what extent did increases in the rate of taxation serve to finance increased social services and transfer payments to the population. For this purpose, the ratio of the total of budgeted expenditures on health, education, and transfer payments to total taxes (Series II) was calculated; the results are presented as Series VII in Table V. The ratio declined from 1932 to 1933 but increased thereafter until 1937 with a large jump occurring from 1935 to 1937. In other words, an increasing share

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scientific research, a part of which may be directed at constructing atom bombs, and so forth. There is undoubtedly substance to this objection.

It does not appear to be feasible, however, to draw a sharp distinction (particularly in terms of budget expenditures) between education and propaganda in the Soviet Union (or in most other countries).

Since 1949, and perhaps earlier, expenditure on scientific research has been presented in the budget as a separate category, alongside of education, under the more general heading: social and cultural expenditures. From 1949 to 1951, the separate expenditures on science amounted to roughly 10 per cent of expenditures on education (*cf.* Finance Minister Zverev's recent budget speeches). This provides an indication of the possible extent of expenditures on scientific research when they were included under education. It does not exclude the possibility, of course, that large outlays for atomic and other research are still included under education. Unfortunately, there is, to my knowledge, no reliable information on this matter.

Since 1949, expenditures on the press, theatres, etc. have been included in the budget under education only to the extent that the separate enterprises are not self-financing. *Cf.* N. N. Rovinskii, *Gosudarstvennyi biudzhet SSSR* (State Budget of the USSR), Moscow 1949, p. 292. Before 1949, gross expenditures on these categories were financed by the budget. I am not sure whether or not budget expenditures on education are net of receipts from tuition fees. If not, there is an overstatement of expenditures on education from this source.

Table V.—Average Rate of Money Taxation Recomputed, 1932–1950

(in per cent)

	1932	1933	1934	1935	1936	1937	1938	1939	1940	1948	1949	1950
Average Rates of Taxation												
II. Basic rate of tax (from Table III)	51.5	55.9	55.8	60.1	60.1	57.2	54.4	59.1	60.0	68.8	67.6	60.0
IV. Adjusted for social insurance and sales of government bonds	42.4	46.9	47.4	52.1	53.1	51.6	48.3	53.5	53.6	62.1	60.8	53.0
V. Adjusted for social insurance, sales of government bonds, and retained profits	36.9	42.3	44.9	49.3	48.6	48.4	46.3	50.1	50.7	60.3	57.2	50.1
VI. Adjusted for expenditures on health, education, and transfer payments	38.3	43.3	42.7	45.2	43.1	37.8	35.9	42.2	43.1	48.8	47.1	40.6
Importance of Benefits from Taxation												
VII. Ratio of health, education, and transfer payments to total taxes (series II)	30.3	28.0	28.4	28.7	32.4	38.7	38.0	32.9	32.6	34.7	36.3	37.8

Sources: See appendix (fn. 18).

of taxes on the consumers returned fairly directly to the population in this period, and less was devoted to other nonconsumption items (*e.g.*, defense, investment, administration). In 1939, as the Soviets prepared for war, this trend was sharply reversed. From 1948 to 1950, the relative importance of expenditures on social services was once again on the rise, and by 1950 had almost reached the 1937 percentage level.[28]

VI. *Trends in the Burden of Taxation*

In this section, changes in the average rate of taxation are treated as an indicator of changes in the rate of nonconsumption as well as of the psychological burden of taxation. For this purpose it is important to note that the average rate of taxation is affected by changes in the degree of repressed inflation in the state sector of the economy.[29] Increases in repressed inflation are reflected in higher prices in the collective farm markets, hence in larger household incomes from sales (or expenditures) in these markets. At the same time, an increase in repressed inflation is indicative of too low a rate of taxation to support the rate of nonconsumption presumed by the state investment plan. So when repressed inflation is on the rise, taxes tend to be understated, household income overstated, and the burden (taxes/income) therefore understated relative to the burden which would obtain if taxes were large enough for fiscal stability. Conversely, when repressed inflation is being reduced, the burden of taxes tends to be overstated. If the effects of repressed inflation could be removed from the ratio of taxes to income, the resulting series would obviously be a better index of changes in the rate of nonconsumption (though not, perhaps, of the psychological burden of taxation) than the unadjusted series presented above in Table III.

If the *volume* of trade on the collective farm markets had remained relatively constant, then it would be possible to remove a large part of the effect of changes in repressed inflation by deducting from the household income series, income from sales on the collective farm markets. Unfortunately, the volume of trade on these markets did not remain constant. Sales were gradually wiped out between 1927 and 1931 as the state attempted to liquidate (what was then called) private

[28] We have made no adjustment here for the fact that a ruble used to buy a unit of equipment is probably worth a lot more than a ruble used to buy a unit of education or health. *Cf.* N. Jasny, "The Soviet Price System," *Am. Econ. Rev.*, Dec. 1950, XL, *passim.*

[29] By repressed inflation we mean simply that the amount of goods the household would like to buy from state and cooperative stores at going prices is in excess of the amount offered for sale. This excess demand typically spills over into the collective farm markets (where price is set freely by supply and demand) raising prices in these markets above those in state and cooperative stores.

trade; the collective farm markets were reconstituted in 1932 and the volume of trade rose steadily from 1932 to 1939, and perhaps to 1940. For this reason, no attempt will be made to quantify the impact of repressed inflation on the average rate of taxation; this distorting effect of repressed inflation will be taken into consideration, however, in the discussion which follows.[30]

The First Five Year Plan Period

Series I shows a continuous increase in the rate of taxation from 1925/6 until 1929/30; the rate of increase is fairly constant with the exception of 1929/30 when a big jump upward occurs. These five years include the last three years of the NEP and the first two years of the First Five Year Plan. The figures indicate that during the last three years of the NEP the state was not just marking time until the blueprints for a planned economy were completed and ready to be put into operation; on the contrary the state was annually pre-empting larger percentage shares of the nation's output.

It is interesting that the first year of the plan period (1928/29) does not mark a sharp break with the preceding period; it is not until 1929/30 that the full impact of the industrialization drive is felt by the population. This seems to be in accord with other available information. It was originally planned that the net rate of investment would be 22.6 per cent in 1928/29 in comparison with 18.9 per cent in 1927/28, and 25.1 per cent according to the minimal variant or 28.2 per cent according to the optimal variant in 1929/30.[31] Apparently progress in 1928/29 was sufficiently satisfactory to warrant raising the target for investment for 1929/30 by about one-third over the original plan.[32] This combination of facts seems to indicate that only a moderate

[30] Other modifications would be in order if we were particularly concerned with determining the Soviet rate of nonconsumption.

A closer approximation to the actual rate of nonconsumption is obtained by removing transfer payments from both the income and tax series. This has the effect of reducing the ratio of taxes to income, but leaves the trend from year to year relatively unchanged.

It would also be appropriate, in attempting to determine the actual rate of investment, to add to the total of taxes, increments (decrements) to currency in circulation. For to the extent that taxes, profits of nationalized industry, and receipts of the state from other sources are insufficient to cover Soviet nonconsumption expenditures (including those financed by short-term bank loans of the *Gosbank*) the government introduces new currency into circulation. Including changes in currency in circulation with taxes has the effect, in most years, of increasing the ratio of taxes to income, but with the exception of the years 1932 to 1934 it does not affect the trend.

Since we are primarily concerned with the rate of taxation of the population neither of the above adjustments is made, nor are certain other minor sources of financing investment taken into consideration.

[31] M. Dobb, *Soviet Economic Development Since 1917* (London 1948), p. 236.

[32] *Ibid.*, pp. 242-43.

rate of increase was planned for 1928/9 relative to 1927/8, and that a much sharper increase probably occurred in 1929/30. Our figures are in accord with this and, if anything, suggest an even sharper shift to nonconsumption in 1929/30 than was contemplated in the revised plan.

The large increase in the rate of taxation in 1931 may be largely spurious. By 1931 all legal private trade had been abolished, and it was not until mid-1932 that the collective farm markets were legally organized. In the interim a large amount of illegal private trade is reported to have been conducted, the value of which was not included in the official figures.[33] Furthermore, to the extent that peasants found it difficult to conduct trading operations, consumption in kind was probably increased. Both of these factors would operate to cause our rate of taxation to be spuriously high in 1931, the first by reducing computed consumer money income, and the second by causing a real shift from consumption of marketed commodities to consumption in kind.

Some illegal trade may also have been conducted in 1929/30 and our tax rate for that year may be high. However, even if the illegal trade were taken into account, an extraordinary increase in the rate of taxation would probably still have occurred in 1929/30; and the rate for 1931 would probably fall somewhere between the rates for 1929/30 and 1932.

Repressed inflation increased steadily from 1928 to 1932, and collective farm market prices are reported to have reached a peak in 1932.[34] Prices of some foods were 15 times the ration prices of comparable goods sold in cooperative stores.[35] The growth of repressed inflation in this period implies that the share of the government sector in the national output was growing even more rapidly than the average rate of taxation series indicate.

Second and Third Plan Periods

From 1932 to 1936, the average rate of taxation increased slowly,

[33] The figures for retail trade turnover are broken down as follows:

	1929/30	*1931*	*1932*
State	4.1	6.5	15.5
Cooperative	12.4	18.2	25.8
Kolkhoz	—	—	7.5
Private	1.1	—	—

Sources: See appendix.

[34] M. M. Lifits (editor), ***Ekonomika sovetskoi torgovli*** (Economics of Soviet Trade) Moscow 1950, p. 319.

[35] Sh. Turetskii, "Puti planivoraniia tsen" (Methods of Price Planning), ***Planovoe khoziaistvo*** (Planned Economy), 1936 No. 3, p. 130.

by a few points a year, on the average. As an indicator of the rate of nonconsumption, this increase has an upward bias due to the fact that from 1933 to 1937, repressed inflation was being gradually worked off. In 1933, repressed inflation is reported to have declined by about 50 per cent;[36] prices of agricultural products declined by 20 per cent in 1934 and 12 per cent in 1935 and by December 1936 had reached a level which was from 1/3 to 1/3.3 of the 1932 level.[37]

It is not possible to state with confidence whether the absolute level of consumption from marked output rose, remained the same, or declined from 1932 to 1936. The standard of living could have risen if national output per capita was increasing at a faster pace than the rate of taxation (nonconsumption); or fallen if national output had remained the same or declined. Soviet indexes of output and productivity for industry both show unusually rapid increases beginning in 1933;[38] the output of the major crops also increased from 1933 to 1935, with a sharp decline in 1936, however.[39] All in all, the indications are that some increase in living standards probably occurred from 1932 to 1936.

The situation from 1936 to 1938 is unambiguous: the share of consumer income absorbed by taxes declined by 6 to 7 percentage points, fairly conclusive evidence of a rise in the consumers' share in the national output. These figures are in accord with the fact that the 1937 harvest was exceptionally good, undoubtedly affecting the level of consumption in both 1937 and 1938.

In 1939 and 1940, the rate of taxation increased as rapidly as it had declined in the previous two years. This increase reflects preparations

[36] *Ibid.*, p. 133. There was a sharp decline in the amount of currency in circulation in 1933, certainly circumstantial evidence that a deflationary policy was being pursued. The movements of other financial magnitude indicate a similar policy. It is interesting to note that if we included the change in currency in circulation along with taxes in computing the average rate of taxation (as suggested in fn. 30), the trend in the rate of taxation for the years 1932 to 1934 is altered as follows:

	1932	*1933*	*1934*
Series II, unadjusted	51.0	55.9	55.8
Series II, adjusted	55.8	53.5	56.9

The rate of tax is spuriously low (as an indicator of investment) in 1932 because of the increase in repressed inflation, and spuriously high in 1933 because repressed inflation was being reduced.

[37] *Ibid.*, pp. 133, 136; Lifits, *op. cit.*, p. 319.

[38] *Cf.* A Gerschenkron, "The Soviet Indices of Industrial Production," *Rev. Econ. Stat.*, Nov. 1947, XXIX, 218; W. Galenson, "Russian Labor Productivity Statistics," *Indus. Lab. Rev.*, July 1951, IV, 500. The indexes computed by Donald Hodgman (as yet unpublished), presumably free of the specific Soviet weighting bias, bear out the statement in the text.

[39] Jasny, *The Socialized Agriculture of the U.S.S.R.* (Stanford, 1949), p. 792.

for war[40] which apparently were begun in earnest in 1939, and the smaller harvests in these years. It is surprising that the rate of taxation increased by less than 2 points in 1940 compared with 1939 in view of the threatening international outlook and need to prepare for war. Two developments may explain this low figure: First, a substantial part of increased defense needs were met by a cutback in expenditures on the national economy, particularly industry.[41] Second, repressed inflation appears to have been on the rise again in 1940 so that the change in the average rate of taxation probably understated the increase in the rate of nonconsumption.

Postwar Period[42]

The figures for the postwar period are very interesting. In 1948 the average rate of taxation was higher than in any prewar year; about 65 per cent of consumer money income was handed over to the government in the form of taxes (Series III). In 1949, the average rate of taxation declined by one percentage point; and in 1950 by about 6 percentage points . . . almost down to the 1940 rate of taxation. These reductions reflect the much publicized consumers' goods price cuts of March 1, 1949 and March 1, 1950.[43]

The principal implication of this decline in the rate of taxation is that in 1950 the consumer was getting a substantially larger share of the national output than in 1948; and since national output was undoubtedly increasing in this period, a very large percentage increase in real income. Although this may be difficult to accept in view of the tense international situation and the popular conception of a Russia arming to the teeth, it is not unreasonable.

The rate of taxation in 1950 is not low even by Soviet standards. In fact it is higher than the rate of taxation in the last prewar year, 1940, a year in which maximum peace-year preparedness efforts were being made. And in 1948 the rate of taxation was 8 to 9 per cent higher than in 1940. The reasonable interpretation, it seems, would be to consider the 1948 rate of taxation abnormally high, reflecting a structure of pro-

[40] The proportion of budgeted defense expenditures to total budgetary expenditures increased from 18.7 per cent in 1938 to 25.6 per cent in 1939 to 32.5 per cent in 1940.

[41] From 1939 to 1940, absolute expenditures on the national economy and on industry fell from 60.4 billion rubles to 58.3 billion rubles, and from 31.1 to 28.6 billion rubles, respectively. Since total budgetary expenditures were increasing, the percentage (of budgetary expenditures) declines was much greater: from 39.4 to 33.4 per cent, and 20.3 to 16.4 per cent.

[42] Soviet sources indicate that there has been little or no repressed inflation since the currency reform of December, 1947.

[43] See Moscow newspapers of March 1, 1949 and 1950.

duction not yet returned to normal after the war; and the decline in taxation from 1948 to 1950, a return to normalcy.

There are special reasons for expecting an increase in consumers' goods output in this period. During the war years consumers' stocks and reserves must have declined to an incredibly low level and provision had to be made for restocking. Furthermore, the morale of the population may have been at a low ebb after a difficult war and many years of privation; the reduction in rate of taxation may have been required for reasons of internal political stability. Finally, it should be noted that the shift in the distribution of national output toward the consumer does not at all imply that the absolute amount of resources devoted to investment, defense, etc. declined; increases in the output of consumers' goods probably were met largely out of increases in productivity and total output.

THE CYCLICAL TURNING POINTS IN AN "OPEN" ECONOMY: CANADA, 1927-1939

By Edward Marcus*

Very little theoretical or empirical work has been devoted to studying the *international* transmission of the business cycle. As Morgenstern has said, "We do not have too much knowledge about the working of a business cycle in a closed economy, but we know even less about the transmission of cycles from one country to another . . . the few explanations of the international transmission offered currently are very tentative and appear more or less as mere appendixes to, or extensions of, specific cycle theories."[1] It is with these international aspects that this article will deal, particularly as illustrated by the Canadian economy in the decade before World War II.

In general, the degree of vulnerability of an economy to external influences is assumed to vary with the dependence on foreign markets; the less self-sufficient the economy, the more sensitive it is to changes in business activity abroad. Such a relationship, however, does not always hold; Canada, for example, displayed some independence of movement during the interwar years, particularly at the peak of the cycle. In both 1929 and 1937 her downturn preceded those of the cycles in her two main external markets, the United States and Great Britain. Here world economic forces of a more general nature, rather than cyclical, tended to dominate the course of the Canadian economy. These forces arose from the many intangible commercial ties that are a concomitant of an extensive foreign trade; they reflected the impact of changes that result from shifts within specific markets for Canadian products.

On the other hand, the Canadian upturns from the troughs of 1932-1933 and 1937-1938 were clearly the response to similar moves within the economies of her two main customers. Only after the American and British recoveries had begun was Canadian business activity stimulated sufficiently to follow along.

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[1] O. Morgenstern, "On the International Spread of Business Cycles," *Jour. Pol. Econ.*, Aug. 1943, LI, 287. *Cf.* in addition to this article, G. Haberler, *Prosperity and Depression*, 3d ed. (League of Nations, 1941), Ch. 12, 13, for a summary of the literature.

These four turning points will now be examined more closely, with particular emphasis on how the relative importance of domestic and international circumstances affected their timing.

I. *The 1929 Downturn*

Although the period 1927-1929 was a prosperous one, symptoms of the forthcoming decline appeared early. Prices of the main Canadian exports—wheat and wheat flour, wood pulp and newsprint—started to sag in 1927 and 1928; an oversupply was slowly building up, and the volume of exports started to waver. Gradually, the effects on incomes and purchasing power accumulated, and other sectors of the economy ended their upward movement. As the declines spread from the main exports to production and incomes, secondary indices, such as those of the supplying industries, employment, and distribution followed.

The Canadian economy thus turned down several months before the American turning point occurred. This is not surprising, for Canada was far less industrialized, more dependent on agriculture and forestry products. Since the 'twenties were not a period of great prosperity for those industries compared with the manufacturing areas, the earlier downturn of the raw material sectors found a more vulnerable situation in Canada. Manufacturing was not so large that it could sustain an over-all prosperity, such as continued south of her border for several months more.

After the first World War, a situation of overproduction had gradually emerged in industries exploiting natural resources. Per capita wheat consumption was dropping while production was recovering.[2] In the Canadian newsprint and pulp industries the danger was all on the side of a too-rapidly increasing supply. From 1927 to 1929 installed capacity increased by one-sixth, and the operating ratio tended to remain within the range of 80 to 85 per cent of rated capacity.[3]

The danger first showed up in a weakening of the price structure. From mid-1927 to mid-1929 the Stanford University Food Research Institute's weighted average of Winnipeg cash closing prices of ten grades of Canadian wheat dropped more than 30 per cent, from \$1.47 to \$1.01 per bushel. The Canadian visible supply started to climb as a result of a wheat crop 80 million bushels more in 1927-1928 than in 1926-1927. World wheat stocks registered the largest annual increase

[2] *Cf.* B. Ohlin, *The Course and Phases of the World Economic Depression*, rev. ed. (League of Nations, Geneva, 1931), pp. 21, 39, 45, 49, 93, 124-25.

[3] *Cf.* E. A. Forsey, "The Pulp and Paper Industry," *Can. Jour. Econ. Pol. Sci.*, Aug. 1935, I, 502; Ohlin, *op. cit.*, p. 59; C. E. Fraser and G. F. Doriot, *Analyzing Our Industries* (New York, 1932), p. 317.

since the war. Wheat flour prices dropped almost 20 per cent during the same period. Wood pulp prices also declined, particularly in 1927, groundwood—Canada's main wood pulp export to the United States—going from $1.50 per 100 pounds in the first quarter to $1.15 in October.[4]

In 1928 the volume of Canadian wood pulp exports, particularly to the United States, ended their upward trend, and in some months even registered declines. Since 80 per cent of these exports went to the United States, and since the main form—groundwood—was used to make newsprint, we would expect the export movement to follow that of American newsprint production. In contrast to the Canadian newsprint industry, the American output was declining, the average for 1928 having dropped more than 15 per cent below 1926. Not protected by a tariff as was the rest of their paper industry, American producers were being forced out of newsprint into tariff-protected high quality paper manufacture, using other pulp, particularly the chemically prepared types. In addition, the use of chemical pulp was becoming of increasing importance in the manufacture of paper and paperboard. In short, the American demand for wood pulp was shifting from groundwood, of which over 90 per cent of the imports were supplied by Canada, to the chemical pulps, for which Canada was a much less important supplier—of only about one-third of the imports.[5]

In 1928 the growing overcapacity in the newsprint industry brought on a disastrous price war. Started by negotiations over the renewal of the large Hearst newspaper chain contract with International Paper, the price war spread to all companies. Contract prices dropped a quarter in the summer months. However, since the volume of newsprint consumption was a resultant of the circulation and advertising linage of the newspapers,[6] and since both the newspaper newstand prices and advertising rates were unchanged, despite the lower news-

[4] Data from readily available publications have not been cited. In general, export figures are from *Trade of Canada;* wheat statistics from the Food Research Institute, *Wheat Studies;* Internal (Canadian) series from the Dominion Bureau of Statistics, *Mo. Rev. Bus. Stat.* (since replaced by the *Can. Stat. Rev.*); U.S. statistics from the *Surv. Current Bus.*, the *Fed. Res. Bull.*, and the *Mo. Summary For. Commerce;* British import data from the *Accounts Relating to Trade and Navigation.*

[5] Most of the information on the pulp and paper industry is drawn from J. A. Guthrie, *The Newsprint Paper Industry* (Cambridge, 1941); and contemporary accounts in the *Monetary Times* (Toronto), the *Financial Post* (Toronto), *Editor and Publisher* (New York), and the *Economist* (London).

[6] Newspapers usually maintain a fixed ratio of each issue's advertising to total space. A change in the advertising volume would thus alter the size of the individual issue and therefore the quantity of newsprint per copy. A change in circulation would vary the number of newspapers sold and thus, again, the volume of newsprint consumed. Hence, changes in either affected the publishers' demand for newsprint.

print costs,[7] the drop in newsprint prices resulted only in curtailed revenues for the manufacturers, rather than a jump in sales volume. This was reflected in share prices, the newsprint firms' securities dropping 40 per cent during the period of the price war, while the average of all Canadian industrials rose 30 per cent.

What undoubtedly postponed the downturn at this point was the inflationary influence of the banks. At this time they were pursuing an expansionary policy despite the outflow of gold to the United States; this latter movement was the result of a greatly increased adverse trade balance, as imports rose with increased prosperity at home, producers' goods imports, in particular, responding to expanding investment demands within Canada. Yet, despite this drain on reserves, the banks continued to expand loans and deposits; in part this resulted in lower reserve ratios for the banks, and in part the deficiency was met by increased borrowing from the Dominion government under the Finance Act.[8] This borrowing, in turn, resulted in a gold outflow from the reserves backing the Dominion notes; in January 1929 Canada abandoned the gold standard *de facto* by placing an embargo on gold exports.[9]

Another inflationary influence was the "wheat holdback" in 1928-1929. The 1927-1928 crop had been very good, and prices had declined. As 1928 wore on, however, the outlook for the next crop was not promising. Since it was felt that European millers were dependent on the high-grade Canadian wheat for milling flour, and since it was thought that there would be a shortage of these quality grades, many Canadians believed that a sizable price rise for these particular strains was inevitable.[10] The Wheat Pools, private traders, farmers, millers, and speculators all shared this view. Hence, a holding movement developed in Canada, moving Canadian wheat prices out of line with world prices of competing wheats, the normal premium in the Liverpool market doubling. Much of this holdback, of course, was financed through the Canadian banks.

[7] Actually, some advertising rates were raised during this period. *Cf.* the *Editor and Publisher International Year Book for 1935* (New York, 1935), p. 106.

[8] The method of borrowing and the effects on the banks' reserves were analogous to U.S. member bank borrowing from the Federal Reserve Banks, although at that time the Canadian banks did not have a central authority holding their reserves.

[9] For a more complete story of this episode, see V. W. Malach, "The Mechanism of Adjustment in Canada's Balance of Payments, 1921-9," *Can. Jour. Econ. Pol. Sci.*, Aug. 1952, XVIII, 313-15; C. A. Curtis, "Credit Control in Canada," Canadian Political Science Association *Papers and Proceedings II*, May 1930, especially pp. 109 ff.; and my (unpublished) doctoral dissertation, *Economic Fluctuations in Canada, 1927-1939* (Princeton University, 1950).

[10] This discussion is based on contemporary material, especially in *Wheat Studies* and the *Economist*.

The results were disastrous. During the latter half of 1928 and throughout 1929 there was an almost perfect inverse movement between the premium on Canadian wheat and the percentage of British imports of wheat coming from Canada; the larger the premium, the lower the Canadian share of British orders. This adverse effect on Canadian wheat exports started with the holdback in 1928; in the last quarter of that year Great Britain, the Netherlands, Switzerland, and Belgium started to curtail their purchases of Canadian wheat. Canadian flour exports also lagged, since the main constituent (Canadian-grown wheat) had risen so sharply in price; foreign competitors had turned to cheaper grades. In fact, in protest against the control of sales in Canada, British importers and millers extended a definite buying preference to Argentine and Russian wheat.[11] The resulting decline in exports and increase in stocks of wheat and wheat flour were far more than the Canadians had anticipated.

The curtailment of these exports reacted back on farm purchasing power, and after Christmas 1928 rural spending dropped off.

As the effects of the various deflationary forces cumulated—the decline in wood pulp exports and prices, the newsprint price war, and the wheat holdback—they began to be reflected in total spending. After the first quarter of 1929 bank debits, which had been exceeding the corresponding months of 1928, started to decline. The drop in wheat and wheat flour exports hit steamship and railroad earnings, as well as the textile industry through lessened demand for flour sacks. Both newsprint and wood pulp exports, particularly to the United States, also were below the previous year. As the declines spread, other industries reacted. Pig iron production dropped in March. Construction contracts, which had been running ahead of the previous year, dropped below in April and May 1929.

At the end of March stock prices broke sharply both in Canada and the United States, Canadian prices declining much more. As though touched off by this shock, series after series started to waver or turn down in Canada, and even in the United States a few started to recede. From April on, the chronicle is a dreary repetition of recession in the individual Canadian indices. The downturn was now well under way, to be followed in June by the United States.[12]

[11] *Cf.* H. S. Patton, "The Canadian Wheat Pool in Prosperity and Depression" in W. L. Holland (ed.), *Commodity Control in the Pacific Area* (London, 1935), p. 142; Royal Bank of Canada *Letter*, November 1935, p. 2; *Wheat Studies*, vol. VII, Nov. 1930, p. 20 (note 3) and Dec. 1930, p. 125.

[12] *Cf.* A. F. Burns and W. C. Mitchell, *Measuring Business Cycles* (New York, 1946),

II. *The 1932-1933 Recovery*

The downward movement of the Canadian economy, like that of most of the world, continued almost without interruption for more than the first two years after the 1929 peak. Production and incomes fell, unemployment rose, and the dreary pall of stagnation enveloped the entire country. Since her two main customers—Great Britain and the United States—were depressed, it was inevitable that Canada should be similarly affected.

It was this dependence on two different economies, however, that finally put a bottom to the recession. It will be recalled that each of Canada's two main export groups depended greatly on the demand in one of these countries—wheat and wheat flour on the British demand, wood pulp and newsprint on American demand. While both customers were in the downward phase these two export groups were not prosperous, of course. But with the 1932 upswing in Great Britain,[13] the wheat indices improved, along with those parts of the Canadian economy whose main market was also in Great Britain. Hence, offsetting the continued downward pull of the American market was the upward movement of the British; as a result, the Canadian economy tended to level off in 1932. Then, in the following spring (1933) the American economy turned up sharply, accompanied by Canada. With both the British and American recoveries as supports, the Canadian indices then were, almost without exception, in the revival phase.

Although we have not emphasized the impact on the Canadian balance of international payments, it might be noted that its cyclical behavior also made for a certain degree of maneuverability during the depression period. Because of the importance of producers' goods imports, a recession within Canada would reduce domestic investment sharply, thus tending to cause a drop in imports greater than was developing in her exports (as a result of other countries' recessions), thus improving the current account position. This improvement offset the accompanying drop in the inflow of (mainly American) capital funds, thus averting serious pressure on domestic banking and currency re-

p. 78, and the 30th Annual Report of the National Bureau of Economic Research, *New Facts on Business Cycles* (May 1950), chart 4 (p. 11).

[13] Immediately after her departure from the gold standard British financial policy, fearing inflation, pursued a restrictive program, preventing any inflationary boomlet, such as occurred in the United States in the spring of 1933. The Bank Rate was raised to 6 per cent on September 21, 1931, and was kept at that level until February 18, 1932. Hence, it was not until several months after the ending of the external pressure on the pound sterling that internal recovery was permitted to get under way. For a summary of British policy and events during this period, *cf.* H. Heaton, *The British Way to Recovery* (Minneapolis, 1934), Ch. 4.

serves, minimizing the foreign exchange difficulties that plagued so many other debtor nations.[14]

If we examine the general indices, we can see the decline slackening by 1932. Manufacturing production, which had dropped almost continually from its April 1929 high of 117.7 to 59.0 in April 1932, rose to 72.8 in June, then gradually receded to 62.2 at the end of the year, and to 52.0 by February 1933.[15] Mineral production dropped from 75.8 in April 1929 to 47.3 in August 1932, the depression low, recovering during the remainder of the year. The low for exports (excluding gold) to Great Britain (in terms of Canadian dollars) was reached in 1931, January 1932 exceeding the previous January by almost $2 million, or 25 per cent. Exports to the United States, of course, remained low until the recovery in the spring of 1933.

It will be recalled that in the preceding prosperity warning signals could be detected some two years before the actual downturn. Moreover, these signs of weakness were applicable particularly to the Canadian economy, centering about its own products—wheat and wheat flour, wood pulp and newsprint. No important world event prior to the summer of 1929 influenced significantly the course of Canadian economic activity. In contrast, the 1929-1933 period was one of almost uninterrupted decline, stopped only by external events whose influences were world-wide—the recovery in business activity in the United States and Great Britain, and the resulting revival in Canadian exports to these two. These two developments were powerful enough to reverse the course of Canada's domestic cycle.

The relation of the 1932-1933 cyclical turn in Canada to the movements of the British and American cycles can be seen by examining the foreign exchange movements. In the months following the widespread departures from the gold standard in the autumn of 1931, the British pound declined much more than did the Canadian dollar. Hence, during that period the pound was depreciated in terms of both the Canadian and American dollars, while the Canadian dollar was depreciated in terms of the American dollar; in other words, temporarily, Canada had a competitive exchange position that was advantageous relative to the United States but disadvantageous relative to Great Britain. Yet, in 1932, it was in the British market that Canadian exports started

[14] For a more extended discussion of the external adjustment, *cf.* E. Marcus, "The Cyclical Adjustment Pattern of an 'Open Economy': Canada, 1927-1939," *Econ. Jour.*, June 1952, LXII, 305-17.

[15] 1935-1939 equals 100. Source: *Mo. Rev. Bus. Stat.* This movement was similar to the course of industrial production in the United States. The Federal Reserve Board index declined from its September 1929 high of 116 to 52 in July 1932, rose to 62 in October 1932, then dropped back to 55 by the end of the year and to 54 in March 1933 (1935-1939 equals 100, unadjusted index).

to recover, while shipments to the United States continued declining as a result of the continued drop of economic activity there. The drop of the Canadian dollar in New York, from September 1931 to April 1933, did not counteract the depressing effects of the receding activity in the United States, whereas the British recovery, and accompanying rise in domestic purchasing power, were strong enough to offset the effects of the depreciation of the British pound in terms of the Canadian dollar. On the other hand, in the spring of 1933, the U.S. dollar dropped sharply, in terms of the Canadian dollar (and other currencies); despite this apparent exchange disadvantage to Canada, the accompanying rise in U.S. incomes in response to the various New Deal measures resulted in a sharp rise in Canadian exports to the United States.[16] In both periods, it was the domestic incomes, rather than the foreign exchange price effects, that dominated the movement of Canadian exports.

Coincident with the British recovery the turning point in many Canadian export indices occurred in mid-1932, particularly those for the sterling bloc markets—foodstuffs, nonferrous metals, and automobiles. Because of the particular commodity markets first receiving this stimulus, the geographical distribution of recovery in Canada was initially uneven, the Prairie Provinces (Alberta, Saskatchewan, and Manitoba) experiencing more benefit than Quebec, where the wood pulp and newsprint industries were still suffering as a result of their dependence on the U.S. market. For example, bank debits in the Prairie Provinces in 1932 were only 8 per cent below 1931, whereas in Quebec they were almost 21 per cent lower.

Then, in March 1933, the American recovery began. This aided Canada both directly, because of the increased buying by Americans, and indirectly, the intangible currents of American business psychology spreading northward across the border. This almost immediate reaction can be seen readily in the export statistics. In the first four months of 1933 Canadian exports to the United States (excluding gold) were almost 40 per cent below the first four months of 1932; in May-June they were only 3½ per cent less; and in July 1933, 42 per cent higher than in July 1932.

Practically every important Canadian index that had not turned up with the 1932 British upswing recovered in the 1933 American boomlet.[17] The almost unanimous agreement in timing of the American and Canadian series is obvious; only newsprint exports lagged, because

[16] For a somewhat more extended discussion, *cf.* Marcus, "The Cyclical Adjustment Pattern of an 'Open Economy,'" *loc. cit.*, pp. 308-11.

[17] The immediate and widespread influence of the U.S. upturn is seen in the sharp reversal from decline to rise in almost everyone of the forty leading indicators of Canadian economic activity in the months after the start of the New Deal.

American newspaper advertising, and thus newsprint consumption, lagged until the last quarter of the year.[18] In common with most of the world Canada was starting the climb up the business cycle again.

III. *The 1933-1937 Upswing*

During these years Canada enjoyed an upswing, although not back to full employment. The mining industry led the recovery, while wheat was a conspicuous laggard.

The expansion of mining output was paced by gold. The rise in its Canadian dollar price after the 1931 departure from the gold standard while production costs were falling furnished a strong stimulant. Moreover, since Canadian gold was frequently found in conjunction with other metals, production of these others also rose, aided by an expanding British demand for housing, and later for rearmament. Moreover, many mining companies had completed large-scale programs aimed at achieving greater efficiency; these had been initiated before the 1929 depression broke, but the resulting reduction in costs could now be reflected in a quickly increased output.[19]

The partial replacement of wheat exports by the mines' output is shown strikingly in the annual figures in Table I.

TABLE I.—CANADIAN EXPORTS
(Annually; millions of Canadian dollars)

Year	Wheat and Wheat Flour	Percentage of 1928 Exports	Non-monetary Gold[a]	Percentage of 1928 Exports	Selected Nonferrous Metals[c]	Percentage of 1928 Exports
1928[b]	$498	100.0	$ 40	100.0	$ 66	100.0
1933	142	28.5	82	205.0	51	77.3
1934	150	30.1	114	285.0	66	100.0
1935	156	31.3	119	297.5	84	127.3
1936	237	47.6	132	330.0	103	156.1
1937	182	36.5	145	362.5	152	230.3

[a] Newly mined gold.
[b] 1928 rather than 1929 was selected, because of the wheat holdback in the latter year.
[c] Aluminum, copper, lead, and nickel.

[18] This lag of newspaper advertising behind general business activity in the recovery phase was a characteristic commented on by C. V. Kinter, "Cyclical Influences on Newspaper Advertising," *Am. Jour. Econ. Soc.*, Oct. 1947, VII, 88.

[19] This and the following paragraph are a summary of material from the Canadian Dominion Bureau of Statistics reports on various phases of the mining industry; the *Canada Year Book* annual issues; reports by the provincial Bureau of Mines in Ontario and Quebec; annual reports of the leading Canadian mining corporations; the annual issues of *The Mineral Industry*, edited by G. A. Roush (New York); and contemporary reports in the *Financial Post*, *Monetary Times*, *Northern Miner*, and *Economist*. The table is based on data in the *Trade of Canada*.

The wheat areas continued to remain depressed as prices remained low and large stocks accumulated, both in Canada and abroad. Intervention by the Dominion government, which had started in 1930, was not sufficiently strong to offset the world-wide depression in the grain trade. Throughout the 'thirties the Canadian Wheat Board dominated the movement of Canadian wheat, selling off stocks gradually, particularly in 1935-1937, as wheat prices recovered.[20]

In a pattern strikingly similar to that before the 1929 turning point, the Canadian recovery ceased before the American cycle reached its peak. Once again there were specific difficulties within the newsprint and wheat sectors that accounted for the turning point within Canada. Canadian wheat and paper indices started to falter several months before the 1937 drop in the United States. The recovery in Great Britain showed signs of hesitation in the later half of 1936, thus ending the upward movement of Canadian exports to that country. Wheat and wheat flour exports were particularly affected.

Meanwhile, in the United States, perhaps as an advance sign of the recession, newspaper advertising ceased to gain at the beginning of 1937. American newsprint production also stopped increasing. Hence, by the early spring of that year, Canadian wood pulp exports to the United States were losing momentum, as had also occurred eight years before.

At the same time, costs in Canada, as well as in the United States, were rising rapidly, tending to make new investment less profitable. The price index for 30 Canadian industrial materials rose 25 per cent from October 1936 to March 1937, more than in the preceding three and a half years. Wholesale prices rose 12 per cent from May 1936 to July 1937, or as much as in the preceding three years. Comparison of raw materials' and manufactured goods' prices is made in Table II.

In general, it can be said that in 1936-1937 raw material prices (*i.e.*, costs) were rising faster than manufactured goods' prices (*i.e.*, selling prices), thus putting pressure on per-unit margins. Wage rates, too, were rising, the 1936 to 1937 increase of 7.4 per cent exceeding that of the entire preceding three-year period (5.8 per cent).

IV. *The 1937-1938 Recession and Recovery*

These various difficulties within the Canadian economy made it vulnerable to the 1937 recession in the United States. However, unlike the situation in 1929, Canada's other foreign markets continued to provide support, as a result of the increasing rearmament programs. For

[20] For a discussion of the wheat situation, *cf.* contemporary accounts in *Wheat Studies* and the *Economist*.

TABLE II.—CANADIAN PRICE INDICES
(1926=100)

	1933 Low	Start of 1936 Rise[a]	Percentage Rise, 1933 to 1936	1937 High	Percentage Rise, 1936 to 1937
Field Origin					
Raw materials	34.5[b]	55.0	59.4	91.0	65.5
Manufactured	65.2	70.3	7.8	87.0	23.8
Animal Products					
Raw materials	55.0	70.1	27.5	84.9	21.1
Manufactured	58.8	70.0	19.0	79.0	12.9
Forest Products					
Raw materials	64.4	73.6	14.3	98.0	33.2
Manufactured	55.9	55.9	0.0	70.2[c]	25.6
Mineral Products					
Raw materials	74.8	78.8	5.3	88.8	12.7
Manufactured	83.4	84.8	1.7	93.1	9.8

[a] For more than a year, following the 1933–1934 upswing, wholesale prices had remained fairly stable. These eight groups then resumed their rise at varying months in 1936, the particular month for the start having been selected after inspection of the charted time series.
[b] December 1932.
[c] January 1938.
For descriptions of the indices, see the Dominion Bureau of Statistics' annual series, *Prices and Price Indexes.*

example, in Great Britain, despite the recession there, construction and heavy goods industries held up, thus sustaining the demand for Canadian nonferrous metals.[21] As a result, the decline in the level of economic activity within Canada was less, proportionately, than that in the United States. Although the latter's exports were also aided by the overseas rearmament outlays, the lesser rôle played by foreign trade made the stimulating effects much less intense.

The support provided by the Canadian mining industry made it, in the words of an *Economist* correspondent, "one of the chief buttresses of Canada's economy."[22] The value of its output was down less than 5 per cent from 1937 to 1938, while employment actually rose. Of the main minerals, physical output rose from 1937 to 1938 for gold, copper, lead, zinc, petroleum, and natural gas. Silver, salt, and gypsum decreased less than 5 per cent and only asbestos showed a decrease larger than 10 per cent.

The lesser impact on Canada is shown by the production indices in Table III.

In contrast to the preceding (1929-1933) depression, recovery came

[21] J. A. Brown, "The 1937 Recession in England," *Harvard Bus. Rev.*, 2, winter 1940, XVIII, 254.
[22] July 16, 1938, p. 120.

quite quickly. The American pump-priming policy plus European re-armament soon brought both Canada and the United States into the upward phase of the cycle for the remainder of the period before the outbreak of the war. Many British armanent orders were placed with Canadian firms, particularly in the iron and steel industry, including contracts for the construction of new plant facilities.

With the revival of U.S. industrial output and incomes, Canadian exports to the United States picked up, increasing almost 70 per cent from February to November 1938. Exports to Great Britain almost

TABLE III.—CANADIAN AND UNITED STATES PRODUCTION INDICES
(1935–1939 = 100)

	1937 High	1937–1938 Low	Percentage Drop
Manufacturing production			
Canada	118.4	89.5	−24.4
U.S.	123	79	−35.8
Producers' goods—Canada	115.2	94.8	−17.7
Durable manufactures—U.S.[a]	135	66	−51.1
Machinery—U.S.	134	75	−44.0
Consumers' goods—Canada	114.9	91.4	−20.5
Non-durable goods—U.S.	114	88	−22.8

[a] Includes transportation—automobiles, aircraft, railroad cars, etc.

doubled from April to October 1938. The main nonferrous metals—aluminum, copper, lead, and nickel—now accounted for 15 to 20 per cent of total Canadian exports, double the proportion of the pre-1930 years. Wheat and wheat flour exports recovered, too, both because of the general rise in incomes throughout the world, and because of stock-piling programs in anticipation of war.

Hence, with the European armament programs sustaining exports to that area, and with the additional support afforded by the revival in the United States, Canadian indices turned up, soon recovering most of the ground lost in 1937-1938. From the 1938 low to the highest succeeding month before the outbreak of World War II, Canadian manufacturing output rose 24 per cent; mining output rose 35 per cent, to a level 10 per cent above the 1937 high. The producers' goods industries also stepped up production sharply, with an increase of 22 per cent, to equal the 1937 high, partly as a result of the tripling of new private construction contracts awarded. Although a level of full employment was not attained until the wartime period—even the 1937 high had not reached that point—it was still a decidedly upward movement. With the outbreak of hostilities, of course, the indices were to register much greater gains.

V. *Summary and Conclusion*

One factor which should be stressed is the importance of events and tendencies which were of particular concern to the Canadians, or to some one Canadian activity, yet which, in themselves, were not major events of international significance. The pressure by American purchasers of newsprint for price cuts in 1928, on the surface, was a purely local problem, hardly important enough to count, as a cycle determinant. Yet, because of its occurrence at a time when the Canadian newsprint industry had expanded so greatly as to put itself in a vulnerable position, the American publishers were able to seize the opportunity to "break" the existing schedule of prices. This, in turn, by causing an important segment of the Canadian economy to suffer, helped to bring about the earlier turn in the Canadian cycle in 1929.

In fact, one is struck by the importance of the economic relationships between particular segments of the economy, especially for the explanation of the upper turning point. It has usually been this intertwining of relationships that has served to explain the specific movements analyzed. Thus in 1929 it was not the succession of events leading up to the world-wide collapse in the autumn, but the developments centering around the expected poor wheat harvest within Canada—and the resulting wheat holdback—that explain the drop in Canadian exports and the accompanying adverse balance and foreign exchange difficulties. True, Canada was also caught up in the same forces that were working on the other countries of the world, but these were not the dominating factors directly determining the Canadian turning point. We thus come back to what have been termed "real causes," such as D. H. Robertson offered as possible explanations of the cycle—changes in overseas demand as a result of the vagaries of harvests, war, fashion, etc.[23] The unity of international markets, the interconnections as a result of international specialization, all the innumerable ties that connect the supplier with his customers, become the logical answer for the analyst seeking to determine the cause and effect of movements in the level of activity of related trades.

To a certain extent this relative independence from world cyclical events had an element of the fortuitous. The fortunate possession of undeveloped mineral resources which came within the range of efficient operating costs at just the appropriate time helped make possible the beginning of the upswing in 1932-1933. What would have happened to the Canadian economy if its vast reserves of unmined gold had not existed, as well as the accompanying expansion of the base metals, is

[23] *Cf. e.g.*, *A Study of Industrial Fluctuation* (London, 1915), especially pp. 71-73, 148-49, 181-82.

not difficult to imagine. The wheat economy was depressed; the newsprint industry was plagued with low prices, overproduction, and widespread bankruptcies; neither of these could have provided the necessary stimulus. Certainly, Canada was fortunate in possessing these alternative natural resources at just the right stage of development to come into production on a tremendously enlarged scale.

For the analysis of the upswings, it has been the income levels of the main Canadian customers—the United States and Great Britain—rather than price movements that have been important. This was most strikingly illustrated during the 1931-1933 period of currency disturbances, when Canadian exports rose to those countries whose internal activity was improving, even though their currencies had depreciated relative to the Canadian dollar, and exports suffered if the consuming country's activity were decreasing, even though its currency had appreciated in terms of the Canadian dollar.

During the twelve years studied price was of some importance in determining the demand for Canadian products—for example, too high a price for wheat in 1929 resulted in the loss of much of her overseas market. The significance of the influence of price was reduced, however, by the fact that the leading Canadian exports were governed by a demand that was comparatively inelastic; for newsprint, the main destination was the American newspaper industry, where stability of the newsstand price and advertising rates prevented any variation in the cost of newsprint from being reflected in the final price to the reader, thus nullifying any effects through derived demand. Similarly, most of the outlets for Canadian nonferrous metals were also characterized by an inelasticity of demand. Much of this demand, particularly in the late 'thirties, was in the growing rearmament progams; here the volume purchased depended on the size of the country's budgetary appropriation, rather than the price of the materials required. Moreover, since Canada was a low-cost producer of most of these minerals, further reduction of the sales price would not have increased her relative advantage, and thus her share of the market, since she already had a commanding position. As for wheat, other than the importance of the relative price as compared with competing wheats, the inelasticity of demand for such foodstuffs also worked to minimize the influence of price variations.

In brief, Canada was free to depress herself in advance of the world turning point, but she could not recover before her main foreign markets also enjoyed an upswing.

SRAFFA'S *RICARDO*[1]

By George J. Stigler*

Ricardo was a fortunate man. He lived in a period—then drawing to a close—when an untutored genius could still remake economic science. He lived in a nation where two great problems, inflation and free trade, gave direction and significance to economics. And now, 130 years after his death, he is as fortunate as ever: he has been befriended by Sraffa—who has been befriended by Dobb.

Keynes told us, in 1933, that Sraffa, "from whom nothing is hid," would give us the full works of Ricardo within the year.[2] The truth of the first part of the statement had as its cost the falsification of the second, and it has been a splendid bargain. For Sraffa's *Ricardo* is a work of rare scholarship. The meticulous care, the constant good sense, and the erudition, make this a permanent model for such work; and the host of new materials seem to suggest that Providence meets half-way the deserving scholar. The Royal Economic Society, his patron, displays its justifiable pride in the outcome of this venture by the excellence of the presentation of the work.

I shall not attempt any general estimate of Ricardo's work. It does not seem called for: these nine volumes often amplify and sometimes modify our understanding of his doctrines, but they do not change it in essentials. This is desirable as well as inevitable: it would be high tragedy if Ricardo had been forced to wait more than a century before revealing his ideas. Moreover, there is little point in the conventional "estimates" of past economists. One can indeed debate the desirability of the influence Ricardo exerted on economics, but his vast influence is undeniable and the debate serves no clear purpose beyond exciting his heirs and intellectual assignees. I doubt whether dead professors should be graded—but for those who must have grades, I think Ricardo's policy recommendations were profoundly good but his theory was not of the highest quality.[3]

Be that as it may, I shall restrict my comments to three subjects: the quality of the edition; Mill's influence on Ricardo; and Ricardo and Malthus on Say's Law.

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[1] Reflections on *The Works and Correspondence of David Ricardo*, edited by Piero Sraffa with the collaboration of M. H. Dobb, in nine volumes (Cambridge, Eng. and New York, 1952). References to volume and page will be by roman and arabic numbers respectively.

[2] *Essays in Biography* (London, 1933), p. 138.

[3] And T. W. Hutchison flunks him; "Some Questions about Ricardo," *Economica* (1952), XIX, 415-32.

I. *The Quality of the Edition*

Sraffa's edition seems to breathe precision, so it was only with difficulty that I brought myself to test a small portion of it. The test consisted of a comparison of roughly one-tenth of the paragraphs of his text of the *Principles* with the first edition.[4] The impression of precision is well-founded; I found only one large error.[5] Any economist who does not appreciate how extraordinary such accuracy is, should spend an hour or two checking published quotations.

Aside from the introduction to Volume I, Sraffa's editorial prefaces and notes serve an informative, rather than an interpretive, function. This severe self-abnegation was wise: the facts are relatively timeless but even the best analysis of a predecessor will change with the interests and knowledge of the science. The editorial notes are superb. They seem unbelievably omniscient; they are never obtrusive or pedantical; and they maintain unfailing neutrality. Their presence not only clarifies much of Ricardo's work but also provides a vast fund of information on the economics of the period.

Others may be as uncomfortable as I at undiluted praise, and perhaps one should criticize Sraffa for the insertion of an erroneous "not" (VIII, 359) or argue the irrelevance of the splendid tale of Mr. ——— (III, 427 ff.) in order to emphasize more subtly the superlative quality of the scholarship. But usual rules must bow to unusual events: here is a task that need not be performed again.

II. *Mill and Ricardo*

Ricardo's correspondence opens in 1810, a year after he made the public plunge into economics, and closes with the sad letters of his friends describing his death in 1823. In the former year he was 38, Malthus was 44, Say was 43, James Mill was 37, McCulloch was 31, and John Mill, still busy with Greek, was 4.

In the few letters between Say and Ricardo, the Frenchman seems soft and muddled in comparison with the tough-minded Ricardo. Say's approach was fundamentally much more modern than that of his English contemporaries, but he lacked the intellectual power to develop it satisfactorily. The correspondence makes McCulloch out a less servile and uncritical disciple than legend would have him; for example, he sturdily opposed, although not on the best grounds, Ricardo's mistaken theory of the effects of machinery (fixed capital) on wages (VIII, 381 ff.). The many letters to Trower, an intelligent stockbroker friend of Ricardo's, provide exercise in exposition to Ricardo and relaxation to the reader. Trower was an amiable man, and one imagines with compassion his reception when he unsuccessfully tried to tell a rural audience,

[4] Sraffa will be pleased to learn that his conjecture as to how two Chapter VIII's appeared in the first edition is verified (I, xxviii). The copy in the Columbia library has an uncorrected page 220, which continues with the opening passages of the second Chapter VIII; the corrected pages 219-22 were bound in the index.

[5] Sraffa fails to report, I, 149, line 24, that "they" was "we" in the first edition.

at a time when the price of corn was catastrophically low, that its troubles were augmented by decreases in agricultural taxes (IX, 165n.).

The major interest of the correspondence lies in the letters of Mill and Malthus, most of which have not previously been published. The Mill letters illuminate his rôle in directing Ricardo's career—they are unimportant on matters of economics since Mill was inactive in economics during most of the period. The Malthus letters present the debate over a large number of scientific differences that separated the two leading English economists of the period. We begin with Mill.

Mill had come to London in 1802 to make his way as a writer—a move that surely improved the Scotch Presbytery as well as the literary journals of London.

> The extent of his acquired knowledge and original thinking, when he left Scotland at the age of twenty-nine, will be judged by what he was able to do in the next few years. He kept back from the aspiring Scotchman's venture upon London, until he had attained an unusual maturity of intellectual power; while possessed of good ballast in the moral part. Moreover, we are to conceive of him as a youth of great bodily charms. One of my lady informants spoke of him with a quite rapturous admiration of his beauty. His figure and proportions were fine; the short breeches of the time showed a leg of perfect form. His features beamed with expression. Nothing was wanting that could prepossess people's favourable regards.[6]

Already in 1804 he wrote a first, very poor pamphlet on foreign trade,[7] and in 1808 a second, very able pamphlet, *Commerce Defended,* so he was already an economist of sorts when his acquaintance with Ricardo began.

Ricardo had a great respect for Mill, and so should we. Mill had an integrity, a strength of purpose, and a public spiritness that ordinary men can only admire. He married in 1805, apparently not very wisely, and the twenty greatest years of his professional life were devoted to earning a livelihood as a journalist and editor. He lived partly on the bounty of Bentham, a crotchety landlord. Yet over these years he found the time and energy to educate his oldest son in a manner unparalleled in written history, and to write his famous *History of British India.*

Mill was a man of considerable logical power, wanting only that mysterious gift of insight to achieve greatness. His will could shatter Sheffield steel, and his opinions were no softer;—here is an example:

> We are as little able to humble Bonaparte, as Bonaparte is to humble us. There is hardly any human event that is less within the reach of chance than the humiliation of Bonaparte by the prolongation of our hostilities. This is a truth in which all men appear at last to be agreed; it is so evident that it seems to defy objection.[8]

[6] A. Bain, *James Mill* (London, 1882), p. 35.

[7] *An Essay on the Impolicy of a Bounty on the Exportation of Grain.*

[8] *Commerce Defended* (London, 1808), p. 128.

The portrait of the cold machine of a man drawn in his son's *Autobiography* is no doubt a fair-minded picture, but reflects also the serious human shortcomings of the artist. The letters show a little more of the human being, although the gallantries to Ricardo's womenfolk are most ponderous. In plain fact, I disagree with Bain: something was lacking in Mill to prepossess our favorable regards. But let us get on to Ricardo.

In the late summer of 1815, Mill began to press for a treatise. Ricardo was settled on his estate, Gatcomb Park, and now "sufficiently rich to satisfy all my desires, and the reasonable desires of all those about me" (VI, 262), when Mill's campaign began.

> When I am satisfied, however, that you can not only acquire that reputation [for talents, and profound knowledge of an important subject], but that you can very greatly improve a science on which the progress of human happiness to a singular degree depends; in fact that you can improve so important a science far more than any other man who is devoting his attention to it, or likely to do so, for Lord knows how many years—my friendship for you, for mankind, and for science, all prompt me to give you no rest, till you are plunged over head and ears in political economy.
>
> I have other projects upon you, however, besides. You now can have no excuse for not going into parliament. . . .(VI, 252.)

Within a week Ricardo agreed to make the attempt:

> Whether it be art in you, knowing how effectual the desire of distinction is in calling forth exertion and talent, to persuade me that I have certain capabilities, in order by the reward which you display in such glowing colours, and to which I am feelingly alive, to stimulate me to exertion and put my power to the test,—or whether you are really satisfied that I have those capabilities I am not quite sure,—but of this I am certain that if the latter is your opinion you are completely deceived. . . . The experiment shall however be tried,—I will devote as much time as I can to think and write on my favorite subject. . . . (VI, 262-63.)

The letters now unfold the picture of a strict but kindly master dealing with a brilliant but unconfident and procrastinating pupil. There are detailed instructions on the high art of composition (VI, 329, 339),—and even on the way to organize one's time (VI, 340). Ricardo periodically despairs, as in a letter to Trower: "Thus you see that I have no other encouragement to pursue the study of Political Economy than the pleasure which the study itself affords me, for never shall I be so fortunate however correct my opinions may become as to produce a work which shall procure me fame and distinction" (VI, 315; also VII, 54, 89). But the taskmaster just as often revives confidence: "For as you are already the best *thinker* on political economy, I am resolved you shall also be the best writer" (VI, 340).

By the fall of 1816 Mill is receiving portions of the manuscript, and his reaction could not fail to encourage any author:

> My opinion may be given in very few words; for I think you have made

> out all your points. There is not a single proposition the proof of which I think is not irresistible. . . .
>
> You have, therefore, made great progress toward the production of a most admirable book. The style also, is really excellent. . . . And easy then for you to put the last hand to a work which will gain you immortal honour (VII, 98-99).

Ricardo expresses his indebtedness in generous terms:

> How very encouraging your letter is! . . . If I am successful in my undertaking it will be to you mainly that my success will be owing, for without your encouragement I do not think that I should have proceeded, and it is to you that I look for assistance of the utmost importance to me—the arranging the different parts, and curtailing what may be superfluous (VII, 100-01).

In the spring of 1817 the *Principles* appeared, but Ricardo was given no rest. He must have shivered at Mill's wish to have a cottage within a couple of miles of Gatcomb Park: "how I would keep you to it!" (VII, 184). Ricardo again hesitates at Mill's bold plans:

> In the first place I am not very persevering, unless the object for which I work is steadily before my eyes.—I have all the disadvantages too of a neglected education, which it is now in vain to seek to repair. It would be wise in me to stop where I am and not like a desperate gamester venture my gains to the fearful odds to which they are exposed. My mind often misgives me about the Parliamentary scheme, and I think if you knew me as well as I know myself you would advise me against it (VII, 190).

Such excuses were to Mill mere literary lace:

> Which of our *educated* sparks has written such a book as yours? (VII, 196).
>
> You are now, beyond all dispute at the head of Political Economy. Does not that gratify your ambition? And who prophesied all this? Tell me that! And scolded you on, coward that you are? Tell me that! (VIII, 10).

And so, in the fall of 1818 the seat in Parliament is arranged, and Ricardo is instructed to write political discourses as practice for his rôle of legislator.

Should we take these letters at face value and credit Mill with the existence of Ricardo's treatise? I do not know. We must recall that Ricardo wrote the two pamphlets on the bullion controversy and the *Essay* (1815) without apparent intervention by Mill, and the *Proposal* (1816) is due chiefly to Pascoe Grenfell's solicitation. Interest, leisure, and ambition supported the writing of the *Principles*. Nor is there any evidence that intellectual humility was an obstacle to publication for Ricardo. He never deferred to the authority of Malthus, Say, or even Smith; it is always his literary accomplishments, and never his beliefs, for which he apologizes (*e.g.*, VII, 140). The apologies were justified, and a comparison of the early pamphlets with the *Principles* reveals precious little progress in this respect for which Mill might claim credit. Perhaps Ricardo had a phobia on literary composition

that it took a Mill to overcome, but perhaps also Mill, with all his fussing and prodding, merely hastened the work.

I shall not follow any farther the schemes of the Scotch impresario, but before we leave him, let us hear Ricardo's response to still another plan:

> This scheme would not contribute to my happiness. You are mistaken in supposing that because I consider life on the whole as not a very desirable thing to retain after 60, that therefore I am discontented with my situation, or have not objects of immediate interest to employ me. The contrary is the case—I am very comfortable, and am never in want of objects of interest and amusement. I am led to set a light value on life when I consider the many accidents and privations to which we are liable. . . . No one bears these serious deprivations with a better temper than myself, yet I cannot help anticipating from certain notices which I sometimes think I have, that many more await me. I have not I assure you seriously quarreled with life,—I am on very good terms with it, and mean while I have it to make the best of it, but my observation on the loss of esteem and interest which old people generally sustain from their young relatives . . . convinces me that general happiness would be best promoted if death visited us on average at an earlier period than he now does (VIII, 253).

Ricardo got both wishes: he did not become a director of the East India Company; and within three years he was dead.

III. *Ricardo and Malthus: Say's Law*

Malthus was already the celebrated author of the *Essay on Population* and the only professor of political economy in England when his friendship with Ricardo began. They must have been uncommonly fond of each other to persist in an intimacy despite great scientific and intellectual differences and despite their rivalry for the dominance of English economics.

Malthus had one wondrous gift, the intuition to bring to an explicit level deep problems of economic life. His claims are vast: he was an independent discoverer of the "principle" of population; of the theory of rent; and of the fact of a relationship between saving and the level of economic activity. And he had one great weakness—he could not reason well. He could not construct a theory that was consistent with either itself or the facts of the world.

The correspondence should perhaps give us occasion for despair. The leaders of the science, honorable men seeking earnestly for truth, could hardly ever resolve a difference after the most protracted exchanges, and the pages on pages of dreary repetition of arguments tells us again how odd an instrument the human mind is. It would be admirable training, and in more than economics, for our graduate students to write analyses of one of these disputes.

We could follow their early exchanges over the theory of profits or their final dispute over the measure of value, but most readers will probably prefer a discussion of the controversy over what is called Say's Law. This choice is commended by its impartiality, for neither man held an enviable position.

J. B. Say first presented his law of *débouchés,* without fanfare or details,

in 1803. Each individual specializes in production, and the surplus of his product over his needs is exchanged for the surplus products of others.

> This shows, I believe that it is not so much the abundance of money, but rather the abundance of other commodities in general, that facilitates sales. . . .
>
> In this double exchange, money fills only a transitory function. . . . As a result, when a nation has too much of one kind of product, the way to dispose of it is to produce another kind.[9] [my translation]

Without elaboration or application this theory could mean little or much; a theory draws much of its content from its enemies.

Mill presented a similar theory in *Commerce Defended;* it is uncertain whether he was an independent discoverer.[10] One may say that if Say invented the weapon, Mill was the first to slay a duck. The duck was William Spence, a physiocrat, who argued, *inter alia,* that the expenditure of landlords on luxuries was essential to maintain the markets for agricultural produce (and inferentially, all markets). Mill refuted this argument by showing that savings which were invested would continue to provide a demand for the services of the "sterile" groups.[11]

Mill went on to dispute a notion of the *Economistes* that "there is only . . . a market for a given quantity of commodities, and if you increase the supply beyond that quantity you will be unable to dispose of the surplus."[12] Mill was led to state the law of markets:

> But if a nation's power of purchasing is exactly measured by its annual produce, as it undoubtedly is; the more you increase the annual produce, the more by that very act you extend the national market, the power of purchasing and the actual purchases of the nation. Whatever be the additional quantity of goods therefore which is at any time created in any country, an additional power of purchasing, exactly equivalent, is at the same instant created; so that a nation can never be naturally overstocked either with capital or with commodities; . . .[13]

Mill's statement was different from Say's in one respect: he explicitly introduced the condition that the composition of output be adapted to the tastes of consumers and investors.[14]

[9] *Traité d'Économie Politique,* 1st ed. (Paris, 1803), I, 153, 154; see also II, 361-63.

[10] He made no claims of originality and he was already acquainted with Say's book (see *Commerce Defended* [London, 1808], p. 76 n.), but also he did not attribute the doctrine to Say.

[11] *Ibid.*, pp. 68ff. Mill argued parenthetically that the savings would be spent more rapidly than the portion of income reserved for consumption; *ibid.*, pp. 76-77.

[12] *Ibid.*, p. 80.

[13] *Ibid.*, p. 81.

[14] "All that here can ever be requisite is that the goods should be adapted to one another; that is to say, that every man who has goods to dispose of should always find all those different sorts of goods with which he wishes to supply himself in return." *Ibid.*, pp. 82-83, also p. 85.

Ricardo became acquainted with Mill through this pamphlet,[15] and he embraced Mill's version without reservation. In fact Ricardo went considerably beyond the law in his denial that the quantity of money could have any influence on real output. He was called upon in late 1810 to referee for possible publication a manuscript of Bentham's. Bentham made much of the point that if an increase in the stock of money were given to the productive classes (entrepreneurs), they would bid up prices (thus imposing forced savings on fixed income groups) but the amount of investment would be increased. Ricardo commented:

> That money is the causes [sic] of riches has been supported throughout the work and has in my view entirely spoiled it (III, 318).

> An augmentation of money in all cases operates to the disadvantage of some and the advantage of others,—it will neither accelerate nor retard the growth of real riches (III, 325).

Ricardo's objections were fundamentally empirical: the lag of wages behind prices would be of only "momentary duration" (III, 319); and it was "mere speculation" whether entrepreneurs would save more of a given real income than the fixed income recipients (III, 333; also VI, 15-16). His empirical judgments, however, were excessively dogmatic, and he treated his conclusion as if it were as certain as an analytical theorem. His objections considerably delayed the publication of Bentham's essay.[16]

Within a few months Ricardo made this position public, in the *High Price of Bullion* (III, 120-23), and at the same time disputed the possibility of a general glut. Malthus, in reviewing various pamphlets (including both of Ricardo's) on the bullion controversy, dissented from Ricardo's argument that premiums on foreign currencies are due only to overissue of currency. If there is a crop failure, the exchange might move adversely to a country when it imported corn because "the prices of commodities are liable to general depressions from a glut in the market."[17] Ricardo restated Mill's law, with characteristic vigor:

> No mistake can be greater than to suppose *that a nation can ever be without wants for commodities of some sort.* It may possess too much of one or more commodities for which it may not find a market at home . . . but no country ever possessed a general glut of all commodities. It is evidently impossible. If a country possesses every thing necessary for the maintenance and comfort of man, and these articles be divided in the proportions in which they are usually consumed, they are sure, however abundant, to find a market to take them off (III, 108).

Malthus soon sought out Ricardo, and henceforth the controversy continued in their correspondence.

[15] J. S. Mill, *Principles of Political Economy*, Ashley ed. (London, 1929), p. 563.

[16] It is now to appear in Volume III of Stark's edition of *Bentham's Economic Writings*.

[17] "Publications on the Depreciation of Paper Currency," *Edinburgh Review*, No. 34 (Feb. 1811), p. 345.

During 1814 and 1815, when Malthus and Ricardo were publishing highly incompatible pamphlets on the corn laws, the former expressed more openly his scepticism of Mill's law.

> In short I by no means think that the power to purchase necessarily involves a proportionate will to purchase; and I cannot agree with Mr. Mill in an ingenious position which he lays down in his answer to Mr. Spence, that in reference to a nation, supply can never exceed demand. A nation must certainly have the power of purchasing all that it produces, but I can easily conceive it not to have the will. . . . It is not merely the proportion of commodities to each other but their proportion to the wants and tastes of mankind that determines prices (VI, 132).

Ricardo would not admit the possibility of a lack of desire:

> I go much further than you in ascribing effects to the wants and tastes of mankind,—I believe them to be unlimited. Give men but the means of purchasing and their wants are insatiable. Mr. Mill's theory is built on this assumption. It does not attempt to say what the proportions will be to one another, of the commodities which will be produced in consequence of the accumulation of capital, but presumes that those commodities only will be produced which will be suited to the wants and tastes of mankind, because none other will be demanded (VI, 148).

Malthus did not deny categorically the insatiability of human wants, nor has any married economist since his time, but he repeatedly argued that a taste for luxuries developed only slowly (VI, 155). It is difficult to see why a lack of wants would lead to a glut of markets, however, since men so constituted would simply not produce in excess of their desires and any surplus of productive capacity would be devoted to indolence—the classical economists' word for leisure.[18]

J. B. Say dealt more elaborately, but not much more precisely, with the law of markets in the second edition of the *Traité* (1814).[19] His formulation was essentially a truism: Assume that money receipts are always promptly spent; then an offer of one commodity is always an implicit demand for another.[20] This truism has properly been labeled Say's Identity. Say goes beyond this truism, or contradicts it, when he asserts that some commodities

[18] We find Malthus seriously confused on the nature of income. He insisted that the "true question" was whether prices would fall if output increased greatly, income remaining constant, and would not accept Ricardo's argument that income inevitably rose under this assumption (VI, 142, 148, 155-156).

[19] *Traité d'Économie Politique*, 2d ed. (Paris, 1814), Vol. I, Ch. 15.

[20] "Il est bon de remarquer qu'un produit créé offre, *dès cet instant*, un débouché à d'autres produits pour tout le montant de sa valeur; car tout produit n'est créé que pour être consommé, soit reproductivement, soit improductivement, et même pour être consommé le plutôt possible, puisque toute valeur qui attend, fait perdre à celui qui en est actuellement le possesseur, l'intérêt de cette attente; le marchand a soin de ne pas avoir des marchandises qui doivent rester en magasin, et le consommateur a soin de ne pas en acheter très-long-temps avant le moment d'en faire usage. Un produit est donc toujours, autant que chacun peut, destiné à la plus prompte consommation. Du moment qu'il existe, il cherche donc un autre produit avec lequel il puisse s'échanger" (*Ibid.*, pp. 147-48).

lack a market because insufficient amounts of other commodities are being produced,[21] but he does not introduce any conditions (such as rigid prices) which would bring such a disequilibrium about.

When Ricardo came to write the *Principles,* he developed the law of markets along Mill's line (I, 289ff). He too had each recipient of money spend it promptly; "he would not lock it up in a chest" (I, 291). But he asserted that no matter how large the accumulation of capital, all commodities could be sold for prices equal to their costs of production provided the commodities suited consumers' tastes:

> There cannot, then, be accumulated in a country any amount of capital which cannot be employed productively, until wages rise so high in consequence of the rise of necessaries, and so little consequently remains for the profits of stock, that the motive for accumulation ceases (I, 290).

> Too much of a particular commodity may be produced, of which there may be such a glut in the market, as not to repay the capital expended on it; but this cannot be the case with respect to all commodities; . . . (I, 292).

> It follows then from these admissions that there is no limit to demand—no limit to the employment of capital while it yields any profit, . . . (I, 296).

In this form the law of markets is no longer a truism, it is the proposition that general equilibrium of the economy, with prices equal to costs (including "profits"), is compatible with any level of real income. It would be more appropriate to call this the Mill-Ricardo Law than Say's Law.

Ricardo marred this theory by making a concession to Malthus:

> There is only one case, and that will be temporary, in which the accumulation of capital with a low price of food may be attended with a fall of profits; and that is, when the funds for the maintenance of labour increase much more rapidly than population;—wages will then be high, and profits low (I, 292-93).

This is consistent with his theory, but he continues:

> If every man were to forego the use of luxuries, and be intent only on accumulation, a quantity of necessaries might be produced, for which there could not be any immediate consumption. Of commodities so limited in number, there might undoubtedly be a universal glut, and consequently there might neither be demand for an additional quantity of such commodities, nor profits on the employment of more capital. If men ceased to consume, they would cease to produce (I, 293).

The concession is mistaken: if all luxuries were abandoned for savings, there would be no piling up of necessaries, and for that matter their quantity might not increase at all. The output of fixed capital would rise as that of luxuries fell.

We should note that Ricardo did not interpret his law of markets as exclud-

[21] *Ibid.,* pp. 148-50.

ing the possibility of general commercial distress. On the contrary, he devoted a chapter (19) to Sudden Changes in the Channels of Trade, which he believed could for a time occasion widespread distress. Beginning in 1815, however, he made a series of predictions that prosperity would soon come to England (*e.g.*, VI, 232, 345; VII, 49, 170-71; etc.). The prediction was continuously wrong, and it was no compliment to his intelligence that after 1820 he blamed the distress on the abundance of harvests.

The controversy reached a climax with the publication of Malthus' *Principles* (1820). Malthus' theory has been praised lavishly in recent times, but it does not contain any germs of a theory of underemployment equilibrium. We may state with confidence that it does not turn on hoarding: "No political economist of the present day can by saving mean mere hoarding; . . ."[22] In fact his theory is entirely nonmonetary in nature, and the prominence given to a footnote on the importance of money is hard to explain and impossible to justify.[23]

The fundamental argument is expressed as follows:

> It is undoubtedly possible by parsimony to devote at once a much larger share than usual of the produce of any country to the maintenance of productive labour; and it is quite true that the labourers so employed are consumers as well as unproductive labourers; and as far as the labourers are concerned, there would be no diminution of consumption or demand. But it has already been shewn that the consumption and demand occasioned by the persons employed in productive labour can never alone furnish a motive to accumulation and employment of capital; and with regard to the capitalists themselves, together with the landlords and other rich persons, they have, by the supposition, agreed to be parsimonious, and by depriving themselves of their usual conveniences and luxuries to save from their revenue and add to their capital. Under these circumstances, I would ask, how is it possible to suppose that the increased quantity of commodities, obtained by the increased number of productive laborers, should find purchasers, without such a fall of price as would probably sink their value below the costs of production, or, at least, very greatly diminish both the power and the will to save.[24]

This theory is wrong. An amount of savings is matched by an amount of capital goods, and the act of saving need exert no downward pressure on the

[22] *Principles of Political Economy* (London, 1820), p. 32.

[23] The footnote, which has no relevance to the text, is:

Theoretical writers in Political Economy, from the fear of appearing to attach too much importance to money, have perhaps been too apt to throw it out of their consideration in their reasonings. It is an abstract truth that we want commodities, not money. But, in reality, no commodity for which it is possible to sell our goods at once, can be an adequate substitute for a circulating medium, and enable us in the same manner to provide for children, to purchase an estate, or to command labour and provisions a year or two hence. A circulating medium is absolutely necessary to any considerable saving; and even the manufacturer would get on but slowly, if he were obliged to accumulate in kind all the wages of his workmen. . . . (*Ibid.*, pp. 361-62 n.).

[24] *Ibid.*, pp. 352-53 (also II, 301-03).

prices of consumption goods. Malthus' error arises from his assumption that capital formation takes the form only of accumulating the necessaries of labor, *i.e.*, all capital is circulating capital.

Ricardo wrote a critique of the *Principles* at McCulloch's request, and a fair share of it is devoted to the theory of gluts. Ricardo accepts Malthus' theory, with one important correction. If saving leads to a large accumulation of necessaries (Ricardo also improperly identifies capital with circulating capital), which is not accompanied by a corresponding increase of population, wages will rise; Malthus on the contrary argues that wages will fall.[25]

> But if a great quantity of commodities will command little labour, every labourer will have the power to consume a great quantity of commodities. The will to consume exists wherever the power to consume is. Mr. Malthus proves that this power is not annihilated but is transferred to the labourer. We agree with him and say wherever the power and will to consume exists there will necessarily be demand (II, 311).

Malthus fends this attack by introducing rigidity of wages: "We know from repeated experience that the money price of labour never falls till many workmen have been for some time out of work" (IX, 20). Ricardo finds this argument without merit: "I know no such thing, and if wages were previously high, I can see no reason whatever why they should not fall before many labourers are thrown out of work" (IX, 25). Malthus did not pursue this argument.

It is a question of words whether rapid capital accumulation, leading to high wages and low profits, should be said to create a glut; certainly all markets still may be in competitive equilibrium, and no commodity need sell for less than cost. Whatever its name, Ricardo admits that this situation may lead to a cessation of capital accumulation, until the increase of population lowers wages and restores profits.

> Mr. Malthus asks "how is it possible to suppose that the increased quantity of commodities, obtained by the increased number of productive labourers should find purchasers, without such a fall of price as would probably sink their value below the cost of production, or, at least, very greatly diminish both the power and the will to save?["] To which I answer that the power and the will to save will be very greatly diminished, for that must depend upon the share of the produce allotted to the farmer or manufacturer. But with respect to the other question where would the commodities find purchasers? If they were suited to the wants of those who would have the power to purchase them, they could not fail to find purchasers, and that without any fall of price (II, 303-04).

> What I wish to impress on the readers mind is that it is at all times the bad adaptation of commodities produced to the wants of mankind which is the specific evil, and not the abundance of commodities (II, 306).

This concession pertains only to rapid *changes* in the amount of savings, and is independent of the level of savings.

[25] *Ibid.*, p. 362 (also II, 316-17).

Say made a more prolix refutation in his *Letters to Malthus*.[26] Say's letters have considerable merit, and in particular they contain a remarkable sketch of the circular flow in an enterprise economy. But they emphasize Say's lack of precision, and at one point he makes a fatal admission:

> Mr. Ricardo claims that, in spite of taxes and other fetters, the extent of industry is always as great as that of the capital employed, and that all savings are always employed because the capitalists do not wish to lose the interest. On the contrary, there are considerable savings that are not invested when it is difficult to find a use for them, or which, once invested, are dissipated in a mistaken undertaking.[27] [my translation]

Malthus claimed that this concession was "all that I contend for" (VIII, 260), which is not true because Malthus did not make hoarding the basis of his argument. But he was right in saying that Say did not understand his peculiar position: "This important distinction however Say does not make for me, but runs off into an 'Eh! Monsieur!'" (VIII, 261). Ricardo also felt that the *Lettres* "are not very well done" (VIII, 276).

Ricardo once more came against a critic of the Mill-Ricardo theory when he wrote a commentary (IV, 325-56) on William Blake's *Observations on the Effects Produced by the Expenditure of Government* (London, 1823), to which Blake wrote a rejoinder. Blake attributed the postwar distress to "the transition from an immense, unremitting, protracted, effectual demand, for almost every article of consumption, to a comparative cessation of that demand."[28]

> I believe there are at all times some portions of capital devoted to undertakings that yield very slow returns and slender profits, and some portions lying wholly dormant in the form of goods, for which there is not sufficient demand. I believe, too, that when capital accumulates rapidly from savings, it is not always practicable to find new modes of employing it. Now, if these dormant portions and savings could be transferred into the hands of government in exchange for its annuities, they would become sources of new demand, without encroaching upon the existing capital.[29]

Blake's discussion contained ample confusion and lacunae, but Ricardo's rejoinder was not impressive: his mind was closed on the subject, and he insisted on postulating full employment in dealing with a theory of unemployment (IV, 356).

We have touched on only a small part of the contemporary literature bearing on market gluts, but a review of Ricardo's works is not an appropriate occasion for a full survey. Even this strand of the literature, however, is enough to tell us that the analysis rose above the level of bare truisms and

[26] *Lettres à M. Malthus* (Paris, 1820). There is a grotesque "translation"; *Letters to Malthus*, reprinted (London, 1936).

[27] *Lettres*, p. 101 n.

[28] *Observations*, p. 88.

[29] *Ibid.*, pp. 54-55 (and IV, 340).

blind disregard of commercial fluctuations. The triumph of Ricardo over Malthus cannot be regretted by the modern economist: it is more important that good logic win over bad than that good insight win over poor.

IV. *Conclusion*

One leaves Ricardo with some envy. In his time economics was at least as pleasant a subject as it is today. The basic truths of the science seemed almost within grasp: only a few concepts like the measure of value had still to be tidied up, or so it seemed. The frustratingly complex economy which generations of research have uncovered was still hidden in the future. The truths of economics then led directly to good social policy, which only an unrepresentative, soon to be reformed, Parliament sometimes prevented from being translated into immediate action. The possibility that good economics will not inevitably carry the day in a democracy, of which we are acutely aware, also dwelled in the unpredicted future. A diligent economist, to mention a smaller but not negligible attraction, could read all the worthwhile economics appearing and still have time to do work of his own. Indeed, if he were merely to reside in London, "the place in which we meet a succession of clever men . . . and in which we gain instruction by the active opposition which all our speculations whether right or wrong encounter" (IX, 312), he could exchange opinions with a majority of the world's good economists. But we must be content with our compensations, which include things as precious as greater knowledge and greater humility.

We are still to receive from Sraffa a biography of Ricardo. We shall wait for it with the patience which he munificently rewards.

COMMUNICATIONS

Biological Analogies in the Theory of the Firm: Comment

Edith Penrose's "Biological Analogies in the Theory of the Firm" appearing in the December, 1952, issue of this *Review* criticises an article of mine appearing in the *Journal of Political Economy* on the ground that it rests on the theory of biological evolution.[1] A brief reply may serve to bring out some points of scientific value.

The presently relevant aspects of my original article can be summarized briefly. Economics predicts the observable effects of change in exogenous and endogenous factors impinging on the operation of the economic system. It analyzes the economic effects of these various factors upon the optimal conditions of firms and other basic units. From these deduced changes in optimal conditions it predicts that the constellation of firms found in a new environment will have characteristics closer to the new optimal conditions than to the old. It does not (or should not) assert that any or all of the firms in the original circumstances will adjust or modify themselves to achieve the conditions which are optimal for the new conditions. What it does (or should) say is that in the new environment the observed characteristics of the population of firms will be found to have changed toward the new optimal conditions. And this will have happened whatever the wisdom, perspicacity, or motivation of the individual firms. Those who like to think that firms are able to make the required adjustments are free to do so; others, among whom the author is to be counted, can be less restrictive in their axioms and still get similar predicted observable circumstances.

These less restrictive axioms do not assert that businessmen try to maximize profits, since, with uncertainty, no definite meaning can be attached to that prescription of behavior. It is true that there is some situation which, if achieved, would, *ex post,* have yielded a larger profit than any other would have. But this situation is unknowable; hence the lack of prescriptive content. But the economist can, from certain generalized production functions and demand functions, infer the directions of changes in the optimal values of the variables of these functions if these values are now to approach the conditions of the new rather than the old optimum. The economist can do this not because he has greater knowledge than the individual firm but because he is analyzing changes in the optimum conditions of generalized functions. The businessman requires much more than this; he needs to know his particular values, not merely the directions of changes between two different optima derived from generalized functions.

The significant point is that the new optimum is approached even in the

[1] Edith T. Penrose, "Biological Analogies in the Theory of the Firm," *Am. Econ. Rev.*, Dec. 1952, XLII, 804-19.

Armen A. Alchian, "Uncertainty, Evolution and Economic Theory," *Jour. Pol. Econ.*, June 1950, LVII, 211-21.

absence of foresighted appropriate adaptive behavior of individual economic units. It can be induced by differential growth, viability, or profit rates in a competitive regime in which (1) realization of profits is a necessary condition for survival, and in which (2) there is a diversity of adjustments manifested in the variety of factor-service input ratios or consumption patterns.

Economic analysis is therefore not merely a theory of the behavior of individuals; it is a theory of the operation of an economic system, and it yields predictions about the effects of certain changes in both endogenous and exogenous factors affecting the economy. To regard it as a theory of individual behavior is fatal.[2]

With this prologue I now turn to Mrs. Penrose who says she is "not so much concerned to present an analytical critique of the theory as to discuss the applicability of the biological analogy and the implications involved in its use."[3] This is a bit puzzling. The theory I presented stands independently of the biological analogy. Criticisms of the latter are irrelevant to the theory. Mrs. Penrose seems, at the same time, not to have noted another distinction —that between (1) the foundations and development of a theory and (2) the methods of exposition and presentation of it. In my original article every reference to the biological analogy was merely expository, designed to clarify the ideas in the theory.[4]

Having said this much, I could stop if Mrs. Penrose had criticized only the analogy, for then her criticisms would have been irrelevant. But some of her criticisms are directed at the theory, and they are incorrect.

Some of her criticisms rest on logical errors.[5] Most of her criticisms rest on

[2] For example, see the prolonged exchange of views on profit maximization and marginalism beginning with R. A. Lester, "Shortcomings of Marginal Analysis for Wage Employment Problems" (Mar. 1946) and F. Machlup, "Marginal Analysis and Empirical Research" (Sept. 1946) and continuing for three years in this journal. Machlup's defense of profit maximization and marginalism against those who were trying to test axioms rather than theorems would have been airtight if he had (a) defended profit maximization analysis as based on a set of axioms postulating accurate foresight and from which theorems about the operation of the economic system are derived rather than as a theory of individual entrepreneurial behavior, (b) pointed out the difference between testing axioms and testing theorems, and (c) not defended marginalism or profit maximization as a basis for describing individual behavior in the presence of uncertainty.

[3] Penrose, *op. cit.*, p. 811.

[4] Readers of an earlier draft, containing no references to the biological similarity, urged that the analogy be included as helpful to an understanding of the basic approach. My conviction that they were right has been strengthened by Mrs. Penrose, for, paradoxically, she has revealed that the analogy is even better than I had suspected.

[5] For example, she confuses necessary and sufficient conditions in saying that if we "abandon the assumption" that "businessmen . . . strive to make as much [money] as is practicable" and that "if we assume men act randomly, we cannot explain competition, for there is nothing in the reproductive processes of firms that would ensure that more firms would constantly be created than can survive." *Op. cit.*, p. 812. Except for her insisting on the analytical use of the biological analogy such inferences on her part would be unjustified. Conditions for competition in the two areas, biology and economics, need not be the same; and in any event desire to make a profit is not profit maximization and furthermore random behavior was not assumed; I repeatedly stated that it was used as a starting point for the complete exposition. See also p. 815 where "long run" is interpreted as an actually realized situation.

a misconception of what I wrote. In an extremely revealing footnote, she misconstrued the logic of my position, which she restated as follows: "Economists can know the conditions of survival. . . . Therefore economists can know what firms must do to make zero or positive profits. Therefore economists can know how maximum profits can be obtained."[6] Not only do the second and third sentences represent a *non sequitur,* but in addition they exactly reverse my position. Let me explain this by a little analogy(!) A football coach knows that the condition of winning is making more points than his opponent. Does knowing this imply that the coach can know what his team must do in order to win? Does the coach know how this can be done? Defining a desired condition is not the same thing as knowing how to achieve that condition. The confusion between desired conditions and the methods of achieving those conditions is a confusion which I attempted to expose in my original article. Profit maximization purports to be a definition of a situation, not a statement of a method of achieving that condition. That is what Enke meant when he said it was a description, not a prescription.[7] That distinction is fundamental. Ability to prescribe behavior is not necessary—however helpful it is—for the economist to perform as an economist. I started my presentation in the original paper with an extreme model of "random" behavior in order to emphasize that such special knowledge is not necessary. Subsequently, motivated purposive behavior was introduced—without implying profit maximizing because this could not be defined. It was then stated that even with varied motivations the economist had a method for predicting the types of new situations or firms which would have higher probability of survival and thus tend to become the dominant surviving type. It was denied that the economist could predict which particular firms would survive and what adjustments each particular firm ought to make. Thus all of Mrs. Penrose's criticisms on pages 813-15 miss the point.

Finally, she asserts that "the biological framework in which he cast his model has led him to underestimate the significance" of the precise rôle and nature of purposive behavior in the presence of uncertainty and incomplete information.[8] Whether I am right or wrong in my implicit estimation of the significance of certain undefined types of purposive behavior cannot be judged by examining the axioms from which theorems are derived. Only by testing its predictive value by empirical investigation can the theory and its implications about the significance of a particular type of purposive behavior be evaluated properly.

Surely some of her criticisms must hit their target: but this target is one of her own creation—the utilization of strictly analogous reasoning in which the concepts, conditions and interpretations of a theory in one discipline are blindly picked up and applied in another discipline. Neither Enke nor I did that. And there is a grave danger in shooting so many arrows toward this

[6] Penrose, *op. cit.*, p. 813, footnote 26.

[7] Stephen Enke, "On Maximizing Profits: A Distinction Between Chamberlin and Robinson," *Am. Econ. Rev.*, Sept. 1951, XLI, 566-78.

[8] Penrose, *op. cit.*, p. 816.

straw target. Economics may gain much, as it already has, from the concepts and methods of analysis of other disciplines.

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Comment

In the interests of brevity, I shall make only one important point by considering Mrs. Penrose's footnote 26. She wonders "why it is reasonable (on grounds other than professional pride) to endow the economist" employing "viability analysis" with the ability to predict the characteristics of surviving firms adopted by the environment, while not crediting the entrepreneur with equal knowledge. Let us consider gas stations, all operating on a 5 cent a gallon retail margin; there is strong price leadership and enforcement by suppliers, so that this margin is not infringed. If this margin were cut to, say 2 cents, the economist, or any other informed person, can predict that in the long run (1) there will be fewer gas stations, (2) gallonages per surviving station will rise, (3) services will be cut, (4) more emphasis will be placed on lubrications, etc., and (5) costs will fall towards 2 cents a gallon. However, no economist, and no one else, can predict which operator on which location with which brand and which employees might, in fact, survive. It is within the wit of man to describe in aggregate terms some of the qualitative characteristics of surviving firms—but not to prescribe quantitatively the measures that will maximize the profits of an individual firm. Professional pride has nothing to do with it.

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Rejoinder

In his original article Alchian wrote: "The suggested approach embodies the principles of biological evolution and natural selection. . . ."[1] If this and similar passages were not intended to imply that these "principles" were in fact part of the "foundation," of this theory, I can only plead a (perhaps pardonable) misunderstanding of them. I am happy to accept his assurance that the biological analogy was used merely as an expository device. The criticism nevertheless remains that the biological analogy places the whole problem in a misleading frame of reference. That I say this indicates that the differences between Alchian and myself, as he pointed out, go much deeper than is revealed by my objections to his analogical reasoning.

My original criticism of the "viability" analysis was simply that it gives an inadequate and inconsistent account of the significance of human motivation in economic affairs. (This is precisely the reason, incidentally, why the biological model fitted it so well.) In trying to avoid the difficulties inherent in predicting human behavior in an uncertain world, Alchian has given us a model in

[1] Armen A. Alchian, "Uncertainty, Evolution and Economic Theory," *Jour. Pol. Econ.*, June 1950, LVII, 211 (hereafter cited as Alchian, *JPE*).

economics which, it seems to me, (1) explains very little—certainly much less than the traditional economic theory—and relies on a grossly misleading and unjustifiable assumption about competition;[2] (2) is mistaken as to the appropriate use of the model of the profit-maximizing individual firm in economic analysis;[3] and (3) is inconsistent in its treatment of knowledge as between economists and businessmen.[4]

I. *The Misleading Assumption of Competition*

Alchian claims as a chief merit of his theory that it does not rely on "predictable individual behavior";[5] the results yielded by it "will have happened whatever the wisdom, perspicacity, or motivation of individual firms."[6] He rejects the "restrictive axiom" that businessmen try to maximize profits, and substitutes the even more restrictive "axiom" that there exists competition so intense that firms must conform to "optimum" conditions in order to survive. Enke has pointed out that "If there is no competition, a great many policies—all 'good' but only one 'best'—will permit an isolated monopoly to survive."[7] Clearly this is true whenever there is a large amount of monopoly in any competitive system. Hence it is necessary to assume intense competition in order to conclude, as Alchian does, that "Among all competitors, those whose particular conditions happen to be the most appropriate of those offered to the economic system for testing and adoption will be 'selected' as survivors."[8]

Now I should not object to this aspect of his model if Alchian could show one of the following to be true: (a) that intense competition could reasonably be expected to occur whatever the conscious motivation of individuals; (b) that sufficiently intense competition exists in reality; or (c) that the assumption leads to more useful results than the assumption it displaces. Both (a) and (b) are satisfied by the biological theory of natural selection, but my original criticism was that neither (a) nor (b) is satisfied by Alchian's model patterned after it. Alchian himself barred (c) as a criterion for determining the superiority of this theory over the traditional theory when he pointed out that both this and the traditional approach yield the same results.[9]

[2] Edith T. Penrose, "Biological Analogies in the Theory of the Firm," *Am. Econ. Rev.*, Dec. 1952, XLII, 812.

[3] *Ibid.*, p. 813.

[4] *Ibid.*, pp. 813-15.

[5] Alchian, *JPE*, p. 211.

[6] Alchian, above, p. 600 (hereafter cited as Alchian, *AER*).

[7] Stephen Enke, "On Maximizing Profits: A Distinction between Chamberlin and Robinson," *Am. Econ. Rev.*, Sept. 1951, XLI, 571.

[8] Alchian, *JPE*, p. 213. It should be noted that "appropriate" in this quotation can only refer to those "optimal" conditions that can be known in advance by the economist from his knowledge of "generalized production and demand functions." Were it otherwise, Alchian's model would be reduced to the circular and empty proposition that only the most appropriate survive because those that survive are the most appropriate.

[9] Alchian states that with his "less restricted" axioms he can get "similar predicted observable circumstances." Enke explicitly notes that predictions are the same on the

If I am correct in asserting that none of these three conditions is met by Alchian's model, then the assumption of intense competition becomes a kind of *deus ex machina* introduced to make the model work, having no justification except to serve the purpose of replacing the human motivation so summarily dismissed from its former key position.

Competition cannot reasonably be expected to exist if men are presumed to act randomly. Under such circumstances its occurrence would depend on the constant and rapid creation of new firms, and without motivation it is hard to see why new firms should be created at all. Even if motivation is introduced in the modified form of a "desire to make profits," there would still be no reason why firms should appear in sufficient numbers in exactly the required industries or why there should be any response at all to many types of change, for example, to a general price rise due to government spending.[10] This type of response can occur only if firms seize on opportunities to make a little *more* profit—and this comes to the same thing, for all theoretical purposes, as the assumption that maximum profits are desired.[11] The existence of competition cannot be explained by Alchian's model, whereas it is explained in the traditional model with its quasi-empirical assumption that businessmen desire maximum profits.

There would be no need, however, for Alchian to *explain* the existence of intense competition providing that it were found to represent the facts of the real world with reasonable accuracy. But from the evidence at hand one cannot well conclude that a notable characteristic of our economic life is the prevalence of the kind of intense competition required to ensure that firms conforming to the "optimum conditions" of a competitive model have a higher probability of survival than large diversified firms in protected monopolistic positions.[12]

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basis of either theory and the economist can predict "as if each and every firm knew how to secure maximum long-run profits" (*op. cit.*, p. 567). On the other hand, Alchian insists that "only by testing its predictive value by empirical investigation can the theory . . . be evaluated properly" (*AER*, p. 602). But if we get the same results with two theories, how will *empirical* research help us to choose the superior of them? The conclusions Enke draws about his gas stations certainly do not require the roundabout approach of viability analysis. I should be surprised, incidentally, if both theories would yield the same result when applied to the real world of monopolistic competition; but this is beside the point since Alchian and Enke insist that they do.

[10] *Cf.* Penrose, *op. cit.*, p. 813. It is my contention that an explanation of intense competition cannot be satisfactorily given unless an assumption equivalent to profit-maximizing behavior is made. The demonstration of this, however, falls outside the bounds of this rejoinder.

[11] When Alchian states that "desire to make a profit is not profit maximization" he obviously believes that the profit-maximizing assumption implies that individual firms must be able to ascertain what maximum profits are and actually to achieve them—a contention rejected here. For an excellent discussion of this question see Fritz Machlup, *The Economics of Sellers' Competition* (Baltimore, 1953), pp. 53-56.

[12] This especially applies to monopolistic positions resulting from the established reputation of the firm as a whole, and not primarily to special positions regarding particular products.

In other words, although useful results are sometimes obtained by assuming the existence of intense competition, the assumption itself is no more "realistic" nor "intellectually more modest"[13] than the assumption that individual firms try to maximize their profits. Both assumptions are highly artificial analytical devices, though very useful when appropriately used. The latter is applicable to a wider variety of problems and explains considerably more than the former. It takes account, albeit in an unrealistically pure and rigorous form, of the undoubted fact that businessmen are moved by a desire to make money, and it thus explicitly acknowledges human purpose. This is straightforward and has many advantages. The argument in favor of rejecting it on *a priori* grounds has to be powerful indeed.

II. *The Inappropirate Use of "Profit Maximization"*

The assumption that firms try to maximize their profits is rejected by Alchian, not for empirical reasons arising from a study of how firms actually do behave, but for logical reasons arising from the existence of uncertainty. He holds that in the presence of uncertainty no unique maximum profit position exists; that it is therefore impossible to give any meaning to the proposition that firms try to maximize profits; and that, consequently, a mere desire for maximum profits provides no guide for action. On the other hand, he is prepared to admit "motivated purposive behavior" and to recognize that firms are in business to make a profit, although apparently he feels that even this modified motivation is going a bit far.[14]

Once it is allowed that firms do try to make profits, it is not difficult to go a bit further and assume that in general they tend to try to make, if they think they can, a bit more profit than they are making. The question, then, is what difference does it make whether any individual firm knows the *best* way of going about its business—or indeed whether there is any "best" way before the event. This would make a great deal of difference if the economist were attempting to predict the actions of any particular firm. But the economist does not attempt such predictions—nor could he succeed if he tried, as Alchian rightly emphasizes. The economist uses the model of the profit-maximizing individual firm, not to predict the actual conduct of any firm, but merely as an analytical technique to assist him in understanding the effect of change on prices, production, employment, etc.[15] For this purpose it makes no difference

[13] "The approach suggested here is intellectually more modest and realistic . . . ," Alchian, *JPE*, p. 211.

[14] "The pursuit of profits . . . is the relevant objective. . . . Unfortunately, even this proximate objective is too high. Neither perfect knowledge of the past nor complete awareness of the current state of the arts gives sufficient foresight to indicate profitable action." Alchian, *JPE*, p. 218.

[15] At no point has Alchian demonstrated that his undeniably valid objection to the use of the profit maximization assumptions for the purpose of predicting individual firm behavior is an equally valid objection to its use in the analysis of the economy as a whole. Indeed, he suggests the contrary when he concludes that "most conventional tools and concepts are still useful, although in a vastly different analytical framework . . ." (Alchian, *JPE*, pp. 219-20). If the new framework were built on a more acceptable "axiom" than the old, it would be desirable; if it is not, as I am trying to show, then it seems to me that its creation becomes an unnecessary *tour de force*.

whether the conduct of any particular firm can be predicted, whether any firm at all can actually succeed in maximizing profits or even whether uncertainty makes it impossible to say that any particular profit is a maximum.[16]

The existence of uncertainty and the fact that different businessmen do evaluate risk differently is one of the reasons why firms do not all rush at the same speed in the same direction. In most cases differences in attitude toward uncertainty will affect the *rate* of movement in the economy, rather than the *direction* of movement. If firms respond at all to any of the disturbances usually analyzed by the economist—taxes, changes in demand or cost, etc.—they will move in the direction predicted by the economist using the traditional theory and *for the reasons assumed in that theory.*

On this level all that the traditional analysis does is to provide the economist with some insight into the type of action appropriate if losses are to be avoided or more profits made when a disturbance occurs. All he need assume is that most businessmen are intelligent enough not to act perversely, that there will always be some firms who prefer to make more money rather than less under otherwise equal conditions and thus will try to make such adjustments as they think appropriate to this end. If the *kind* of response which actually occurs in the economy when a change takes place corresponds to the *kind* of response appropriate in the model of the profit-maximizing individual firm, then the model has shown its worth for all the purposes for which it is normally used.

III. *The Treatment of Knowledge*

Alchian's model is inconsistent in its treatment of what economists and businessmen can know. In a footnote to my original article I presented a "summary" of the logic of his argument, which read in part: "Economists can know the conditions of survival. *Therefore economists can know what type of firm can escape negative profits.* Therefore economists can know what firms must do to make zero or positive profits. Therefore economists can know how maximum profits can be obtained."[17] In quoting this in his reply, Alchian omitted the sentence here italicized, presumably because he did not think it important. He then charged me with a *non sequitur* and with reversing his position.[18] But, although the words of the omitted sentence are mine, *the logical sequence is his,*[19] and it is precisely at this point that his entire argument, which starts out with the proposition that it is impossible to know how maximum profits can be obtained, reverses itself.

Alchian's insistence that economists can know "what types of firms or

[16] For this reason it is misleading to call it the "theory of the firm" at all—but that is another story. It should also be noted that uncertainty is only one factor destroying the applicability of the theory for predicting the actions of any particular firm.

[17] Penrose, *op. cit.*, p. 813.

[18] Alchian, *AER*, p. 602.

[19] "With a knowledge of the economy's realized requisites for survival and by a comparison of alternative conditions, he [the economist] can state *what types of firms or behavior* relative to other possible types will be more viable" (Alchian. *JPE.* p. 216. italics mine).

behavior . . . will be more viable" makes all the difference in the world to the argument. Consider his example of the football coach. If the condition of winning is merely the definition of winning, then of course we get nowhere. But if the football coach knows *what type of team or type of behavior can win,* can one seriously argue that he can have no idea as to how the required type of team or action could be achieved (even though he himself might not be able to achieve it)? If the omniscience of the economist extends to the type of firm or of behavior that can survive, it is mere quibbling to insist that he cannot advise as to how that type may be achieved.

Now my point is simply that economists do not and cannot have that knowledge of the long-run conditions of survival in the real world which is necessary to give Alchian's model the predictive power he claims for it. Given uncertainty and, in particular, purposive activity on the part of firms, the knowledge of both economists and businessmen about the type of behavior or of firm that will survive in the long run in the real world is equally limited and for much the same reasons. I readily agree that economists deal with, and do know, certain things businessmen do not deal with and consequently do not know; but Alchian is concerned, not with what people in different occupations *do* know, but with what people *can* know in an uncertain world. The proposition that uncertainty makes it impossible for businessmen to form reasonably accurate ideas as to how profits might be made, yet on the other hand does not interfere with the economist's ability to know what type of firm or activity can make profits, seems to me to be simply inconsistent. Uncertainty does not make the businessman's knowledge useless to him in his search for profits; and if the economist can predict anything about the real world of firms it is only because he has an idea about how firms are likely to respond to certain kinds of change relevant to their operations.

The weakness of the traditional analysis for predictive purposes in either the short or the long run is associated with the pound of *ceteris paribus*. It is clear, even from Enke's example, that viability analysis must use the same pound to exclude all unpredictable actions of firms in response to environmental changes which themselves change the conditions of survival. This is the chief import of the criticisms on pages 813-15 of my paper which Alchian believes miss the point. I did *not* do Alchian the injustice of implying that he thought that the economist could, or should be able to, predict the fate of any *particular* firm. On this point we are in complete agreement.

Attempts radically to alter the framework of existing theory are always likely to meet resistance, but progress comes from the interaction between innovation and resistance to innovation. I do not want my criticisms to be interpreted as an attack on the purpose of Alchian's original, provocative and able article—to approach some of the problems connected with uncertainty from a new direction. I am inclined to agree—if I may accept for once a biological metaphor of Alchian's—that "the marriage of the theory of stochastic processes and economics"[20] may be very fruitful; but let it be a

[20] Alchian, *JPE*, p. 221.

marriage by mutual consent with a community property agreement, and not a violent seduction.

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Depreciation Allowances, Replacement Requirements and Growth: A Comment

In his recent article,[1] Profesor Eisner demonstrated that, when price changes are ignored, "Depreciation allowances exceed replacement requirements in growing economies or growing firms"; and that ". . . only when prices increase somewhat faster than real investment do replacement requirements approach the magnitude of depreciation allowances."[2] From this he concluded that ". . . the phenomenon of growth places on shaky ground those who would argue that depreciation allowances are insufficient to meet replacement requirements."[3] Eisner is literally correct in this conclusion, but it appears that he meant by "those who would argue" the many businessmen and accountants who contend that depreciation allowances are too low, for at the start of his paper he stated that their argument ". . . declares that the cost of replacing expiring equipment [thereafter referred to in his paper as replacement requirements] in today's inflated market is actually much greater than current depreciation charges, which are related to original cost of assets."[4] The inference is that the businessmen and accountants who contend that depreciation allowances are too low may be wrong under their own measurement criteria.

Before examining the validity of this inference, it is advisable to note the following concepts: (1) The calculation of depreciation involves the establishment of both a cost basis and an allocation basis. (2) Conventional accounting practice is the straight-line allocation of historical cost. (3) Eisner used the term "replacement requirements" to mean the allocation of replacement cost to the year of retirement.

Eisner was mistaken in his impression that the critics of conventional accounting practice advocate replacement requirements for the measurement of depreciation. Although some popular discussions of the subject do use the word "replacement" rather loosely, to my knowledge use of replacement requirements has not been advocated for calculating depreciation. Indeed, a survey of the literature reveals that all that has been advocated and discussed is a change in the cost basis, *i.e.*, the substitution for historical cost of either replacement cost or current purchasing power of historical cost.[5] Under either of

[1] Robert Eisner, "Depreciation Allowances, Replacement Requirements and Growth," *Am. Econ. Rev.*, Dec., 1952, XLII, pp. 820-31.

[2] *Ibid.*, pp. 830 and 831.

[3] *Ibid.*, p. 831.

[4] *Ibid.*, p. 820.

[5] See E. Cary Brown, *Effects of Taxation, Depreciation Adjustments for Price Changes* (Boston, 1952), particularly pp. 93-123, where the various proposals are discussed, and pp. 151-54, where replacement cost depreciation is estimated. For the accountant's treat-

these two methods the allocation basis would remain straight-line allocation. Therefore, Eisner's analysis, resting as it does on the use of retirements for the allocation basis, does not, as he inferred, confound those who are criticizing current practice, since they do not advocate *replacement requirements* as the basis of measurement.

Since Eisner has raised the cost of maintaining productive capacity (of which replacement requirements is a special case) as a possible basis for allocation, it may be of some interest to compare its accuracy for the measurement of depreciation with that of straight-line allocation. The latter is widely used solely because it is simple and objective; the accounting profession rationalizes the practice with the view that depreciation is ". . . a process of allocation, not of valuation."[6] Similarly, there is no *a priori* reason why the maintenance of productive capacity should result in the correct determination of income. Therefore, comparison of the two methods requires the establishment of a standard of comparison, a third method that is theoretically valid.

Such a criterion is to be found in neoclassical theory, where an asset's income is defined as the periodic payment in perpetuity that has a present value equal to the present value of the asset's expected future receipts.[7] Since depreciation is simply the difference between receipts and income, it follows that a definition of depreciation is implicit in the above. This definition can be stated directly as the present value of the future receipts at the start of the period less the present value of the future receipts at the end of the period with the period's actual receipts excluded from the latter quantity. Or, restated in the language of accountancy, the cost (of depreciable assets) incurred in realizing a period's revenue is the expiration in present value of the assets' expected future receipts. If this measure of depreciation, termed here the "economic life method," is accepted as valid, straight-line allocation and expiration of productive capacity may be compared for accuracy by determining how closely each approximates economic life depreciation. Such a comparison is made below through three illustrative cases, each of which assumes a different path for an asset's receipts over its life.

Before going into these cases, two points should be noted: (1) The cost basis of valuation is a fundamental postulate of accounting, and this postulate will not be violated. Specifically, although the expected receipts at time of purchase will be used to determine that portion of an asset's cost to be charged as depreciation in each year of its life changes in expected receipts over the asset's life will not modify its cost or the depreciation charge. (2) Since the issue here is the allocation of cost—not the cost basis—we need not become

ment of the subject, see W. A. Paton and W. A. Paton, Jr., *Asset Accounting* (New York, 1952), pp. 325-28; R. D. Kennedy and S. Y. McMullen, *Financial Statements*, rev. ed. (Chicago, 1952), pp. 327-32; William Blackie, "What Is Accounting Accounting For Now," *N.A.C.A. Bulletin*, July 1, 1948, XXIX, 1349-1378; and George O. May, *Business Income and Price Levels, An Accounting Study* (New York, 1949).

[6] Committee on Accounting Procedure, American Institute of Accountants, *Accounting Research Bulletin* No. 20 (special), p. 167.

[7] *Cf.* J. R. Hicks, *Value and Capital*, 2nd ed. (Oxford, 1946), pp. 171-88.

involved in any debate over replacement versus historical cost. The latter will be used here.[8]

The first case considers the asset that functions perfectly until the day it falls apart—the case of the "one-hoss shay." Table I presents illustrative data

TABLE I.—DEPRECIATION OF A "ONE-HOSS SHAY"

Period	Receipts	Present Values[a]	Depreciation Based on		
			Productive Capacity	Economic Life	Straight-line Allocation
1	$10	$61.45	$ 0	$ 3.86	$ 6.14
2	10	57.59	0	4.24	6.15
3	10	53.35	0	4.67	6.14
4	10	48.68	0	5.13	6.15
5	10	43.55	0	5.64	6.14
6	10	37.91	0	6.21	6.15
7	10	31.70	0	6.83	6.14
8	10	24.87	0	7.51	6.15
9	10	17.36	0	8.27	6.14
10	10	9.09	61.45	9.09	6.15
Total			$61.45	$61.45	$61.45

[a] Present value at the start of each period of the remaining receipts discounted at 10 per cent.

based on these assumptions: (1) the asset has a ten-year life; (2) expected receipts vary with productive capacity; (3) the rate at which the receipts are discounted to arrive at their present value is 10 per cent; and (4) the asset's present value and its cost are equal at time of purchase. In Table I straight-line depreciation is a closer approximation of economic life than productive capacity. However, economic life moves between straight-line depreciation and productive capacity with the variation in the asset's life and in its rate of discount. Hence, as either or both of these parameters are increased, economic life moves closer to productive capacity.

It may be noted that some accounting texts, when discussing alternative mathematical rules for the allocation of cost, mention an annuity method, which in reality is our economic life method. However, in illustrating the method they assume, as with an annuity, that receipts are constant over time, and the inevitable consequence is a depreciation charge which increases over time. Since they recognize this consequence to be unrealistic and since they consider the method merely a mathematical rule, they reject it as a measure of depreciation.[9]

[8] Replacement cost could also be used. Given for each method the allocation of an asset's cost to any year, the depreciation on a replacement cost basis is derived simply by multiplying the historical cost charge by the ratio of replacement cost to it. A detailed treatment of replacement cost accounting by the writer is scheduled to appear shortly in the *Accounting Review* under the title "The Valuation of Accounts at Current Cost."

[9] For example, see W. A. Paton, *Advanced Accounting* (New York, 1941), pp. 284-86.

TABLE II.—DEPRECIATION OF AN ASSET WITH PRODUCTIVE CAPACITY DECLINING AT AN INCREASING RATE

Period	Receipts	Present Values	Depreciation Based on		
			Productive Capacity[a]	Economic Life	Straight-line Allocation
1	$10.00	$50.86	$ 1.27	$ 4.86	$ 4.62
2	9.75	46.00	1.58	5.15	4.62
3	9.44	40.85	1.98	5.35	4.62
4	9.05	35.50	2.49	5.50	4.62
5	8.56	30.00	3.10	5.56	4.62
6	7.95	24.44	3.93	5.50	4.62
7	7.18	18.94	4.83	5.29	4.62
8	6.23	13.65	6.05	4.87	4.62
9	5.04	8.78	7.58	4.16	4.62
10	3.55	4.62	9.46	3.09	4.62
11	1.69	1.53	8.59	1.53	4.66
Total			$50.86	$50.86	$50.86

[a] Derived by multiplying the cost of the asset with the percentage decline in receipts (which is equal to the percentage decline in productive capacity) during the period. The cost is $50.86, the present value at the time of purchase. This is the method that I presume Eisner would use in calculating depreciation.

In the second case, which Eisner considered the more general one, productive capacity declines at an increasing rate over the asset's life. Table II, which presents the illustrative data, is based on the same assumptions (with the exception of asset life) made in the first case, but here the receipts are derived from the function

$$C_t = 11 - 1.25^{t-1}$$

in which C is receipts and t equals time period. It can be seen that economic life depreciation first rises and then falls, but for the most part it remains close to straight-line allocation. As before, the agreement between these two measures of depreciation varies inversely with the life of the asset and with its rate of discount, but here it also varies inversely with another parameter—the shape of the receipts curve. As this curve approaches a straight line the agreement between economic life depreciation and straight-line allocation increases. Conversely, as these three parameters are increased, the difference between productive capacity and economic life depreciation is reduced. However, here the parameters must have considerably larger and less realistic values than in the first case for productive capacity to be superior to straight-line allocation.

The assumption of the two previous cases that expected receipts vary with productive capacity is in all probability not realistic. It is much more likely that the productive capacity of an asset expires little, if at all, over the period in which its receipts fall to zero. The decline in receipts during this period is due in part to increasing maintenance costs, but primarily it is due to the asset's increasing technological and/or demand inferiority in relation to new equipment, the demand inferiority arising from the discovery of substitutes

for the asset's products. The decline in receipts will take the form of a rise in factor costs and/or a fall in product prices.

This third case is illustrated in Figure 1, with the receipts function derived by assuming (1) that value added in the initial period is \$50, with labor cost \$40 and receipts \$10, and (2) that the cost-price changes over the asset's life are equivalent to an annual 1-½ per cent increase in labor costs.[10] Hence, the receipts function is

$$C_t = 50 - 40(1 + .015)^{t-1}$$

and the asset life is 15 years. With this receipts function and with a 10 per cent rate of discount assumed, economic life depreciation falls continuously

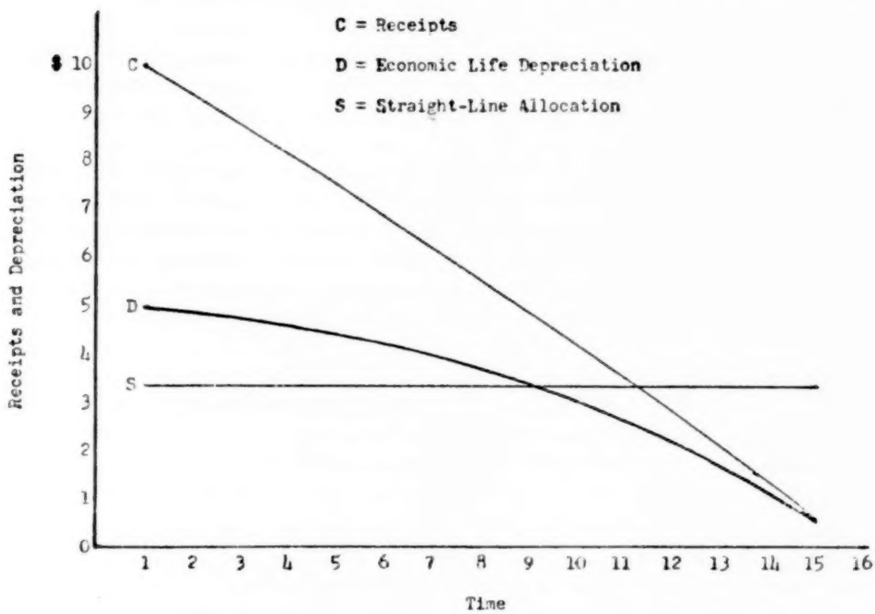

FIGURE 1. RECEIPTS AND DEPRECIATION OF AN ASSET WITH CONSTANT PHYSICAL PRODUCTIVITY AND DECLINING PROFITABILITY OVER TIME

over the asset's life. Consequently, since depreciation based on productive capacity is negligible in this case until possibly the last few years of the asset's life, straight-line allocation is for this asset by far the more accurate of the two methods.

It should be noted that, of the three cases presented, the approach to agreement in this case between economic life and straight-line allocations is by far the least sensitive to changes in the parameters. This can be seen as follows:

[10] These values were selected because: (1) A labor cost equal to 80 per cent of value added seems realistic for a manufacturing firm. (2) National output has been estimated to increase by about 3 per cent per year, with the increase fairly evenly divided between population growth and productivity gains. (3) Productivity gains give rise to a corresponding increase in real wages.

(1) The approximately linear decline in receipts in Figure 1 is not peculiar to the coefficients used in the illustration. It will hold for all values of the coefficients which are consistent with the basic assumptions underlying the third case. (2) Given this behavior for receipts, any change in the life of the asset, either by rotating the receipts curve around its intercept with the vertical axis or by shifting that curve, will not materially influence the form of the depreciation curve. (3) If the rate of discount is low, the depreciation curve will fall continuously at an increasing rate, as shown in Figure 1. However, if the rate is high, the depreciation curve will first rise and then fall, with all but the last few years close to the value for straight-line allocation. To illustrate this, assume a 25 per cent rate of discount and a receipts function of

$$C_t = 50 - 30(1 + .015)^{t-1}$$

in which case the asset has a useful life of 24 years and a cost of \$51.13. The straight-line depreciation is \$2.13, and the economic life depreciation rises and falls in the interval between \$2.00 and \$2.50 during the first nineteen years and then falls to zero.

In conclusion, if economic life is a valid measure of depreciation and if the assumptions of the third case are, in fact, a reasonable basis for predicting the behavior of an asset's receipts, then straight-line allocation is superior to productive capacity as a measure of depreciation. However, if the fall in an asset's receipts parallels the fall in its productive capacity, the superiority of straight-line allocation does not hold as the values of the parameters become relatively large.

Finally, there has been considerable dissatisfaction on the part of many businessmen, economists, and accountants with the two principal accounting conventions—historical cost and straight-line allocation. It is hoped that this comment may prove useful in the evaluation of the latter convention.

MYRON J. GORDON*

* The author is assistant professor of industrial management, Massachusetts Institute of Technology. He has benefited from the criticisms offered by Professor Eisner of an earlier draft of this comment. In particular, it was pointed out to what extent economic life depreciation could vary in the first two cases with an asset's life and rate of discount.

Rejoinder

Mr. Gordon apparently does not challenge the "literal" correctness of my argument. He does raise some question as to its relevance. I should like to attempt briefly to defend the relevance of the relation between depreciation and replacement both to the income-profits setting in which I placed it in my article and to economic theory in general. In doing so I shall venture certain criticisms but not outright rejection of the "economic life method" of depreciation described by Gordon.

1. *"Replacement Cost" and Profits*

As Gordon implies, "popular discussions" do appeal "rather loosely" to the concept of replacement requirements in the argument against current depreci-

ation practices. During the years since the second world war, in the face of repeated reports of record-breaking corporate profits there has been an important campaign to impugn official profits figures. This campaign has been based chiefly on the assertion that replacement cost actually exceeds allowable depreciation charges. For example, Mr. Enders M. Voorhees, chairman of the Finance Committee of the United States Steel Corporation, has declared:

"The item, 'Added to Cover Replacement Cost,' on U.S. Steel's income statement is designed to restore realism in the measurement of depreciation cost in the light of the dollar debasement transpiring between the time facilities were originally purchased and current accounting periods. . . . If a business is to continue it is necessary to recover the purchasing power of sums originally invested in tools of production *so that the tools may be replaced as they wear out.*"[1]

We may cite, in similar vein, the Machinery and Allied Products Institute's *Capital Goods Review* of November 1952, which devotes itself to "the tendency of conventional accounting procedures to overstate profits in an inflationary period." This publication adds (page 2):

"The overstatement arises, of course, from the practice of charging the original, or historical, cost of the inventory and fixed assets consumed in current production rather than the cost of replacing them. When replacement costs are rising, original costs, reflecting earlier, and hence lower, price levels, are insufficient for the *physical restoration of the assets used up in production* [italics added]."

Turning to the ranks of academic economists we may quote from Theodore Morgan's *Income and Employment* (New York, 1952, 2nd ed.): "But a considerable part of this profit rise [from $6.5 billion in 1939 to $39.8 billion in 1950] is an illusion. Profits are figured after *legally allowed* depreciation charges are subtracted. These charges are clearly far too low to replace capital: the costs of capital have more than doubled since before the war so that both current reserves and reserves accumulated during wartime are insufficient to *replace equipment wearing out and worn out*" (pp. 369-70—italics added in last sentence).

As Gordon suggests, popular advocates of the use of "replacement cost" are inconsistent about the concept they have in mind. They intimate broadly, as may be seen above, that depreciation allowances are not enough for replacement of the tools "as they wear out." (Actually, as my article indicated, under reasonable assumptions as to how tools "wear out," depreciation charges are likely to be more than ample for such replacement.) Yet, as Gordon points out, those urging "replacement cost" would not be satisfied with charging *the cost of replacing those assets currently requiring replacement,* although it is in terms of this cost that they make their appeal. They offer proposals to adjust currently allowable depreciation charges by price indices or to revalue assets in accordance with current market price, which indicate clearly that they would really like to base depreciation charges on *the cost of replacing all assets*

[1] Statement before the Subcommittee on Profits of the Joint Congressional Committee on the Economic Report, Washington, D.C., December 21, 1948. (Italics added.)

on the books. Whatever the general merits of such proposals, their proponents might spare us the quite fallacious accompanying lament that depreciation accounts would otherwise be insufficient to prevent firms from fading away.

Gordon is thus correct in observing, in effect, that when critics of conventional accounting practice get down to proposing specific changes in depreciation accounting (as opposed to general appeals aimed at the lay public) they do not advocate anything as useless from their point of view as the allocation of replacement cost to the periods in which replacement costs must be met. However, it is a bit difficult to see the justification for these critics in using "replacement" as a cost basis and then discarding it as an allocation basis. The reason for paying attention to "replacement" cost is presumably, as implied in the quotations above, that it enables firms to account correctly for the maintenance of assets in some "real," physical sense. In this context, replacement costs at any given time can only be relevant to that portion of the firm's assets requiring replacement at that time. Advocating replacement for the cost basis but not for the allocation basis strikes me as endeavoring "to have one's cake, and eat it too." I find it curious to note that Gordon sets himself a higher standard of consistency in his comment than he is apparently willing to impose upon advocates of "replacement cost." For in his presentation of the "economic life method" Gordon uses the one criterion, discounted value of future returns, for both his cost basis and his allocation basis.

I should classify myself as agnostic on the issue of whether the cost of replacing "worn out equipment" (or "the assets used up in production") should be a criterion for the adequacy of depreciation charges. I should demand, however, that advocates of "replacement costs" offer an unambiguous usage of this concept and face its mathematical implications.

2. *A Further Consideration of "Depreciation Based on Economic Life"*

I should classify myself as agnostic as well on Gordon's alternative suggestion or criterion for depreciation charges: "the present value of the future receipts at the start of the period less the present value of the future receipts at the end of the period." Depreciation in conformity with this criterion, which Gordon calls "the economic life method," has, I believe, many facets which Gordon has not explored adequately.

For one thing, current value must really vary with *expected* future receipts, since, of course, future receipts cannot be *known* currently. But this means that if business expectations improve, values of assets, *cet. par.*, rise. Would Gordon then have business firms note an "apreciation credit" which would be an addition to their current profit figure? He would not; but on what justification, other than that "the cost basis of valuation is a fundamental postulate of accounting"?

Secondly, while Gordon is concerned directly only with the constant price portion of my discussion, it should not be forgotten that the entire issue has developed on a policy level only in connection with general increases in prices. How then would the "economic life method" work out with rising prices? If as

a first approximation we assume that the monetary amount of future returns is expected to increase in direct proportion with price increases, we may well find that in a period of rising prices the "values" of assets would rise in their early years, if by "value" we mean the sum of discounted, expected, future returns. Then we might again be warranted in applying an "appreciation credit."[2]

Thirdly and fundamentally, however, I should like to take issue with both the substance and the implicit concept in Gordon's claim that the "economic life method" is appropriate for evaluation of other methods of depreciation because it is "theoretically valid." For it should be observed that economic theory is no monolithic structure. Theoretical concepts which are useful and preferable in approaching one type of problem may be quite inappropriate for another. All Gordon can properly assert is that straight-line allocation of original cost gives a rough "fit" to a curve measuring loss of value of an asset when this loss of value is defined as the loss in discounted value of known future returns (and when length of life of assets and the function indicating the rate of decline of productive capacity or returns are of certain particular parameters). But economic theory may suggest the utilization of a variety of methods of charging depreciation, depending upon the problem at hand. If we are concerned with the capacity for current output, as in certain problems of economic development or in problems of comparing actual output to potential output, we should probably find a measure of depreciation in terms of loss of productive capacity to be much more useful for analytical purposes.[3] Similarly, in application of the acceleration principle it would be more "theoretically valid" to rule out immediately as independent of increases in current demand that part of investment equal to replacement requirements as I defined them in my article than that part of investment that would maintain value intact in the sense Gordon defines "value." Finally, the theoretically appropriate measure of depreciation for purposes of income measurement, as I suggested in my article, should take into account "basic social, political and moral problems of the rights of ownership."

3. *Further Experimentation with Receipts Functions and Their Parameters*

Gordon glosses over certain other complications of his economic life method by failing to set forth general equations or formulae for depreciation charges in accordance with this method. Let us supply such general equations.

First, let V_t equal the value of an asset at the beginning of period t.

Let us designate V_{t+1} as the value of this asset at the beginning of the period $t + 1$.

[2] This should certainly call into question Gordon's assertion (footnote 8) that "the depreciation on a replacement cost basis is derived simply by multiplying the historical cost charge by the ratio of replacement cost to it."

[3] Evsey D. Domar, for example, has suggested some interesting implications for our growth-of-productive-capacity models inherent in just the relation between replacement requirements and depreciation allowances under consideration, in his stimulating "Depreciation, Replacement and Growth," *Econ. Jour.*, March 1953, LXIII, 13-24.

Then let us designate U_t as that part of the value of the asset used up or dissipated in the period t.

From the above it follows that

$$U_t = V_t - V_{t+1} \tag{1}$$

Now, let a equal the length of life of the asset, let g equal the age of the asset at the beginning of period t, let s equal the discount ratio to apply to future returns [if i = the "rate of discount," $s = (1 + i)^{-1}$], and let Y_j equal the returns expected on the asset in the period j.

Then it follows that

$$V_t = \sum_{j=t}^{t+a-g-1} Y_j s^{j-t}. \tag{2}$$

Similarly,

$$V_{t+1} = \sum_{j=t+1}^{t+a-g-1} Y_j s^{j-(t+1)} \tag{3}$$

In the one-horse-shay type asset we may assume, as does Gordon, that the amount of returns expected in each year of the life of the asset is the same. We may then substitute Y, designating this constant return, for Y_j, in (2) and (3). Then substituting (2) and (3), thus modified, into (1), we obtain

$$U_t = Ys^{a-g-1}. \tag{4}$$

Inspection of (4) now reveals readily that the amount of value actually used up in any period varies directly with the values of s and g and inversely with a (it should be recalled that all reasonable values of s will be between 0 and 1; the larger the value of $a - g - 1$, the smaller the value of U_t). Let us try values for s and a which may be believed to square with the real world and see if our conclusions are quite the same as Gordon's.

First, we should note the well-known business goal of rapid "pay-outs" on capital investment. A five-year pay-out criterion for many types of capital is quite common and while this time dimension varies (particularly with the ratio of plant to equipment), it is probably safe to conclude, at least for crudely illustrative purposes, that businessmen will not undertake capital expenditures, on the average, unless the sum of the absolute values of expected returns in the next five years is equal to the cost of the asset. Let us now assume that the length of life of the asset is not ten years, as assumed by Gordon, but 30 years, in accord with various estimates of the mean length of life of capital assets in the United States.[4] We then find that assets of a one-horse-shay variety which "pay-out" in the businessman's sense in five years but actually last 30 years must give returns subject to a discount ratio of about 80 per cent if the sum of future returns is to equal the original cost

[4] Domar suggests this figure of thirty years (*ibid.*, p. 5, fn. 1), citing Solomon Fabricant, *Capital Consumption and Adjustment* (New York, 1938), p. 34, and "estimates obtained orally from the United States Department of Commerce."

of the asset.[5] We may now rework Gordon's Table I and note that an asset promising receipts of $10 per year for thirty years would be worth $50 initially, and would decline to $49.985 at the end of the first year. At the end of ten years the asset would still be worth $49.23. After twenty years, two-thirds of the life of the asset, it would still be worth $44.63, having lost little over 10 per cent of its original value. Even after 25 years, our asset has lost an amount equal to less than a third of its original cost, its present value equalling $33.61. It is clear that with these parameters, measuring loss in value in this way instead of considering loss in productive capacity would not move us particularly far from the A-1 case which I associated with one-horse shays.

Similarly, it can be shown that Gordon's Table II when reworked in accordance with a *25 per cent* rate of discount and 30 year assets will show a loss of value over time which fits my general *A* category of assets declining at an increasing rate. Thus we will note in Table II*, which is entirely analogous to Gordon's Table II except for the changed parameters, that the value of the asset measured by Gordon's "economic life method," drops quite slowly when the asset is new. Indeed, when the asset has lived half its life its value has dropped only from $400.40 to $356.16, a decline of but 11 per cent.

Table II* indicates that in twenty of the asset's thirty years productive capacity expiration comes closer to economic life depreciation than does straight-line allocation. The mean deviation of straight-line allocation from economic life depreciation is $5.01; the mean deviation of expiration of productive capacity from economic-life depreciation is only $4.35. However, more important, when we consider the matter in the relevant context of growth in which I set the problem, we find that in every one of the first 13 years of the asset's life, expiration of productive capacity is a closer approximation to economic life depreciation than is straight-line allocation. It is only in the later years of the asset's life that substantial discrepancies between expiration of productive capacity and economic life depreciation develop. But the nature of the phenomenon of growth is such that older assets are not quantitatively as important as newer ones. For example, if the rate of gross investment were growing at three per cent annum (a rate of growth which Gordon indicates is acceptable, in footnote 10), and all assets had lives of 30 years, only 39 per cent of the assets on the books at any one time would be more than 15 years old. On the other hand, it is to be noted that the major part of the excess of straight-line allocation depreciation charges over economic life depreciation (as over expiration of productive capacity) occurs in the early years of the life of the asset, which, when assets of all ages are aggregated, brings about an "excess" of depreciation charges analogous to the one discussed in my article.

Gordon's final "receipts function" which he derives from the growth of the economy as a whole strikes me as arbitrary in the extreme. I fail to see a

[5] Assuming that annual returns are equal to unity, the discount ratio may be obtained by solving for s the expression:

$$\sum_{n=0}^{a-1} s^n = 5.$$

TABLE II*.—DEPRECIATION OF AN ASSET WITH PRODUCTIVE CAPACITY DECLINING AT AN INCREASING RATE

[Gordon's Table II reworked with assets of 30 years and rate of discount of 25 per cent:

$$C_t = \frac{807.8 - 1.25^{t-1}}{10} = \text{Receipts in the period t} \qquad (7)]$$

Period t	Receipts C	Present Values V	Depreciation Based on		
			Productive Capacity R	Economic Life V	Straight-line Allocation D
1	$80.68	$400.40	$ 0.12	$ 0.75	$ 13.35
2	80.65	399.65	0.15	0.91	13.35
3	80.62	398.74	0.19	1.09	13.34
4	80.58	397.65	0.24	1.32	13.35
5	80.53	396.33	0.30	1.59	13.35
6	80.47	394.74	0.38	1.90	13.34
7	80.40	392.84	0.47	2.29	13.35
8	80.30	390.55	0.59	2.75	13.35
9	80.18	387.80	0.74	3.27	13.34
10	80.03	384.53	0.93	3.91	13.35
11	79.85	380.62	1.15	4.66	13.35
12	79.61	375.96	1.44	5.53	13.34
13	79.32	370.43	1.80	6.55	13.35
14	78.96	363.88	2.26	7.73	13.35
15	78.50	356.15	2.82	9.10	13.34
16	77.93	347.05	3.53	10.66	13.35
17	77.23	336.39	4.41	12.43	13.35
18	76.34	323.96	5.54	14.44	13.34
19	75.23	309.52	6.86	16.65	13.35
20	73.84	292.87	8.60	19.08	13.35
21	72.10	273.79	10.76	21.68	13.34
22	69.94	252.11	13.45	24.40	13.35
23	67.22	227.71	16.81	27.10	13.35
24	63.84	200.61	21.02	29.65	13.34
25	59.60	170.96	26.27	31.76	13.35
26	54.31	139.20	32.85	33.09	13.35
27	47.69	106.11	41.05	32.87	13.34
28	39.42	73.24	51.32	31.24	13.35
29	29.08	42.00	64.14	25.84	13.35
30	16.16	16.16	80.20	16.16	13.34
Total			$400.40	$400.40	$400.40

reasonable basis for translating increased productivity though the rest of the economy taken as a whole into increased costs of operating individual assets of individual firms. Implicit in Gordon's functional relation and parameters must be numerous assumptions about the distribution of an aggregative increase in productivity, the manner of technological change, the nature of obsolescence and dynamic price-cost relationships.

Actually, the expected receipts from certain capital assets may well decline

over time in the almost linear fashion indicated by Gordon's arbitrary function. For very many other assets they may not. This is something to be studied empirically, although it might be very difficult to go beyond accounting rules in imputing receipts to particular assets. In relating loss in value of assets based on a falling time path of expected future receipts to actual depreciation charges one would then have to reckon with depreciation charges as they are actually made for each asset. One might then find, as I suggest in my article in relation to declines in productive capacity, that many assets, the values of which declined in the manner that Gordon here indicates, would actually be covered by some form of "accelerated amortization" or of non-straight-line system of depreciation.[6]

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[6] I should add that I am a bit confused as to the nature of the distinction that Gordon makes between productive capacity and receipts. His reference to productive capacity which "expires little if at all over a period longer than the receipts life of an asset," is particularly puzzling. For aside from a general shortage of effective demand it hardly seems to make economic sense to refer to an asset as having productive capacity when it cannot be economically utilized.

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The Shape of the Average Cost Curve: Comment

With a recent article in this *Review*,[1] Professor Eiteman resumes his particular variant of antimarginalism and revives a controversy he had originally initiated in 1947.[2] Eiteman and Guthrie state that ". . . orthodox price theory is not valid if businessmen believe [their average total cost] curves to be shaped so that their least cost points are at or near capacity. . . ."[3] They find that the overwhelming bulk of businessmen questionnaire respondents do believe the shape of their average cost curves to be as thus described and therefore conclude that the replies "do not support marginal theory. . . . If the beliefs of businessmen in general coincide with those included in this sample, it is obvious that short-run marginal price theory should be revised in the light of reality."[4]

The logical structure of the Eiteman-Guthrie argument is clear. If business-

[1] Wilford J. Eiteman and Glenn E. Guthrie, "The Shape of the Average Cost Curve," *Am. Econ. Rev.*, Dec. 1952, XLII, 832-38.

[2] *Cf.* Wilford J. Eiteman, "Factors Determining the Location of the Least Cost Point," *Am. Econ. Rev.*, Dec. 1947, XXXVII, 910-18; Robert L. Bishop, "Cost Discontinuities, Declining Costs, and Marginal Analysis," *Am. Econ. Rev.*, Sept. 1948, XXXVIII, 607-17; Walter W. Haines, "Capacity Production and the Least Cost Point," *Am. Econ. Rev.*, Sept. 1948, XXXVIII, 617-24; Hans Apel, "Marginal Cost Constancy and its Implications," *Am. Econ. Rev.*, Dec. 1948, XXXVIII, 870-885; Wilford J. Eiteman, "The Least Cost Point, Capacity, and the Marginal Analysis: A Rejoinder," *Am. Econ. Rev.*, Dec. 1948, XXXVIII, 899-904; Walter W. Haines, "The Least Cost Point: A Reply," *Am. Econ. Rev.*, Dec. 1949, XXXIX, 1287-89.

[3] Wilford J. Eiteman and Glenn E. Guthrie, *op. cit.*, p. 832.

[4] *Ibid.*, p. 838.

men believe the least cost point falls at or near capacity, marginalism is not valid. Businessmen do believe this. Therefore marginalism is invalid and price theory should be revised. The initial postulate, however, that such beliefs on the part of businessmen vitiate marginal price-output theory, is as fallacious today as it was when first advanced in 1947.[5] The sole reason Eiteman-Guthrie advance to support their statement that such beliefs on the part of businessmen subvert marginalism is that when businessmen hold such views regarding cost behavior ". . . the short-run marginal cost curve for a product always lies below the average cost curve at all levels of operation short of capacity. The result is that the marginal cost curve cannot intersect the marginal revenue curve (1) if the average revenue curve is horizontal, or (2) if the average revenue curve is high and relatively elastic."[6] Eiteman-Guthrie thus take the well-known graphic marginal cost-marginal revenue intersection to be the crux of marginalism and declare orthodox theory invalid if that equality is not forthcoming in the usual manner.

Taking the replies of their respondents at face value, the following may be offered in rebuttal:

1. If the least cost point is believed to occur "near" rather than "at" capacity, the orthodox demonstration of the equilibrium position of the firm is likely to hold even to the relatively unimportant detail of graphic portrayal via the conventional marginal cost-marginal revenue intersection. For as soon as the average cost curve is admitted to start curving upward, even slightly, before termination at "capacity," the marginal cost curve, which rises above the average cost curve after the latter has passed its minimum value, shoots upward with great rapidity until, at capacity, it is likely to be far higher than the average cost curve. Thus the usual portrayal of the marginal intersection is likely to occur even if the least cost point is "near" capacity.[7] It is still possible, of course, that the demand curve facing the firm may be so high and elastic that marginal revenue never falls as far as the value of marginal cost at "capacity"; in this case we do not obtain the graphic marginal intersection in the usual manner and the example becomes substantially identical with that in which the least cost point is believed to occur "at" capacity.

2. If the least cost point is believed to occur "at" capacity, marginal cost will be equal to average cost at that output level and both curves will end

[5] *Cf.* the conclusive arguments of Bishop and Haines, cited in footnote 2 above. There is, in fact, little than can be advanced in refutation of the Eiteman view that has not already been stated by Bishop and Haines.

[6] Eiteman-Guthrie, *op. cit.*, p. 832.

[7] For a textbook graphic portrayal of such a case, in which the least cost point is placed at the extreme of *95 per cent* of capacity, see Allen M. Sievers, *General Economics* (Chicago 1952), p. 466. Sievers, in fact, uses this model as his typical firm throughout and encounters no difficulty in employing it to illustrate the conventional marginal cost-marginal revenue intersection in all of the customary market situations. Sievers' example is far more extreme than that illustrated by Eiteman-Guthrie's Figure 6, which they claim "does not support maginal theory"; in their Figure 6 the least cost point occurs at approximately 75 per cent of capacity. The corresponding marginal cost curve, which Eiteman-Guthrie do not draw, will rise to a value at capacity which exceeds the original value of their average cost curve as drawn.

there.[8] Thus, providing the demand curve facing the firm is sufficiently high and elastic, there will be no conventional marginal cost-marginal revenue intersection.[9] However, this in no way invalidates marginalism, of which the usual graphic intersection is but a superficial aspect. Marginalism is a deductive principle of the end-result to be expected from profit-maximizing behavior, merely claiming that the entrepreneur will, if possible, produce additional output if the added receipts expected exceed the added costs which it is thought will be incurred. (The identical conclusions can easily be demonstrated via the exclusive use of total cost and revenue, or average cost and revenue, with no mention at all of the marginal quantities involved.) Eiteman-Guthrie make no attempt to refute conventional marginalism thus stated; indeed, to do so they would have to show that firms operating under the posited nonintersection conditions would generally produce at *less* than capacity, for production at capacity output is in accordance with rather than a refutation of orthodox theory.[10]

3. We have seen many cases before in which there are discontinuous curves and in which no marginal cost-marginal revenue intersection exists. Continuous curves either (a) assume continuous data, or (b) are a distortion of reality in the interest of explanatory clarity. The fact that economists use such curves to discuss data that is essentially discrete does not invalidate marginalism; it merely means that the real world is more complicated than our "ideal-type" construct which is little more than a first approximation to reality.

4. If it is assumed (a) that businessmen attempt to maximize a single magnitude—money profit—or some complex of objectives which can be ordered on a scale and termed "satisfactory" profit or "net advantages," (b) that they have adequate knowledge regarding the relevant variables, and (c) that they act rationally, then the essentials of present-day marginalism are *already implied* regardless of the existence or nonexistence of the superficial marginal cost-marginal revenue intersection. Eiteman and Guthrie have concentrated their attack upon trivia rather than upon substance.

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[8] As Bishop has pointed out, strictly speaking the marginal cost curve ends in indeterminacy at capacity. Cf. Bishop, *op. cit.*, pp. 611-12.

[9] If the demand curve is not sufficiently high and elastic, we get the usual intersection of the marginal curves. Eiteman-Guthrie imply that declining average costs are, in some way, incompatible with marginalism, although they never state this view explicitly. That such is not the case can easily be seen by a perusal of any standard work, such as, for example, Joan Robinson, *The Economics of Imperfect Competition* (London 1933), in which most marginal cost-marginal revenue intersections occur during the phase of declining average costs.

[10] The definition of capacity by Eiteman-Guthrie as excluding all overtime work and payments is a partial begging of the entire question. Orthodox marginalism can offer an explanation of a failure to increase output and therefore can at least partially explain why at any one time some firms are and some are not producing *beyond* "capacity." It is not the purpose of this note, however, to disparage the usefulness of the questionnaire results, *per se*, but rather to criticize the implications the authors draw therefrom, even if the survey is taken at face value.

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Comment

In a recent issue of the *Review* an attempt was made to controvert certain notions about the rôle of the firm's average cost curve by the procedure of questioning businessmen on the shape of the curve. The authors are clear to point out that they are not interested in the actual shape of the cost curve but rather in the opinions of businessmen as to the shape, since these are claimed to influence decisions as to output. It is not clear how seriously the authors regard the results of the survey. At successive stages the results are regarded as constituting an attack on "marginal price theory" (p. 832), "conventional marginal price analysis" (p. 837) and finally the much more modest goal of "short-run marginal price theory" (p. 838).[1] However, in a table summarizing the replies of businessmen, the authors classify cost curves as "supporting or not supporting marginal analysis," and place the majority of responses in the latter category.[2]

Replies by 366 out of 1,000 companies reveal that about 61 per cent of businessmen *believe* that short-run average costs "are high at minimum output, and that they decline gradually to capacity at which point they are lowest" (p. 835, see curve labelled 7). The replies of the other businessmen indicate a preference for a cost curve not too far from this conception. The authors interpret these results as substantiating their position against marginalism. They insist that:

> The reasoning of marginal price theory is valid if businessmen *believe* curves to be shaped as theorists assume, even though the curves are actually shaped as opponents contend; conversely, orthodox price theory is not valid if businessmen *believe* curves to be shaped so that their least cost points are at or near capacity, even though the curves really have the shape which conventional theorists maintain (p. 832).

If businessmen make decisions on the basis of a cost curve differing from conventional analysis, which contention supposedly emerges from their investigation, then they insist that conventional analysis must fall (or be revised?—see last paragraph, p. 838).

It is not clear to this writer what significance can be attached to this investigation or if any significance at all can be attached. It appears that the investigation contains misconceptions of marginal analysis, improper use of theoretical terms and errors of methodology.

1. Actually the authors have made no case whatever against marginal analysis. Behavior on the basis of their short-run average cost curves can be readily explained by the tools of marginal analysis, and R. L. Bishop did pre-

[1] The authors seem unaware that they have actually provided an evaluation of their investigation and that they have drawn implications that are anything but obvious. The authors should recognize that they fail to stick to their avowed purpose of describing the methods and reporting the results of their study (p. 833). This by itself would be innocuous, if unenlightening.

[2] In this classification the authors ignore Bishop's devastating criticisms of an earlier article by one of the authors. See R. L. Bishop, "Cost Discontinuities, Declining Costs, and Marginal Analysis," *Am. Econ. Rev.*, Sept. 1948, XXXVIII, 607-17.

cisely this in a rebuttal to a previous article by one of the authors.[3] Bishop indicated how the equality of marginal revenue and marginal cost must be replaced by more fundamental marginal conditions (expressing maximization of profits) to handle outputs where marginal revenue and cost, which are derivatives of the total revenue and cost curves, do not exist. This is the case at the point of minimum cost where the cut-off of the total cost and corresponding average cost curves prevent the existence and equality of both a right-hand and left-hand limit necessary for differentiability and the existence of marginal cost.[4] But this equilibrium output is still given by the more fundamental condition of profit maximization, which is what MR = MC is meant to depict for "normal" curves. The authors mention this latter condition only (p. 832) and thus foster the impression that this is what is meant by marginal analysis. But this is only true under the suitable differentiability conditions, and it is surprising that this would have to be reaffirmed after Bishop's adequate discussion.[5] In effect the authors nowhere present a test of either the assumptions of marginal analysis[6] or its predictions as to output and price policy. Apparently the authors are really testing a hypothesis as to cost and "capacity," which has no bearing on marginal analysis, but they never state the issues carefully.

2. An alternate interpretation of the article is that the authors reject marginal cost pricing in favor of what has come to be known as "full-cost" pricing. Their use of an average cost curve would seem to bear this out, and in particular their statements as to businessmen acting on the basis of what they believe to be the average cost curve reflect this belief, since in the short-run intrafirm equilibrating process it is only marginal curves that are relevant for price and output policy according to marginal analysis, and the position of the average cost curve is price-determined. But the authors make no attempt to relate businessmen's belief in their particular average cost curve to their actual behavior, and thus distinctly leave the impression that the average cost curve they depict is meant only to draw an inference as to the marginal cost curve (see p. 832, par. 1). The authors, however, are never really clear as to the respective rôle of the marginal and average cost curve in short-run (or any run) marginal analysis. In any case their presentation can be made compatible with marginal analysis, and in fact they do not reject the equilibrium output indicated by marginal analysis for their cost curves.

3. In their questionnaire the average cost curve is defined as "a line on a graph which shows the cost per product at each possible scale of operation from the minimum to the maximum (*excluding all over-time work*)" (p. 833). But overtime is surely an important way in which to effect short-run changes

[3] *Loc. cit.*

[4] R. Courant, *Differential and Integral Calculus* (New York, 1946), p. 97.

[5] *Op. cit.*, pp. 609-10. In implying that businessmen normally operate at minimum cost, where marginal cost in their assumed cost curve does not exist, the authors also imply a certain shape and position of the marginal revenue curve (p. 832). This hypothesis, however, is not tested in their questionnaire.

[6] As for instance stated in R. A. Gordon, "Short-Period Price Determination," *Am. Econ. Rev.*, June 1948, XXXVIII, 265-88.

in output. It should be pointed out that although the economist's cost curve depicts cost per unit product vs. rate of output, the rate must in practice be averaged over a large enough time interval so as to smooth over the effect of institutional time indivisibilities such as daily alternation of work and rest. Overtime then certainly does increase the rate of output and must be included in any analysis of the firm. The authors cannot define cost in a peculiar manner and then test a proposition as to the economist's cost curve, which is something different, on the basis of it.

4. Since fundamental errors in definitions and the conception of marginal analysis lie at the base of the study under consideration, it may be amiss to bring in a methodological point, but certain statements of the authors indicate a basic methodological misorientation with respect to the nature of a scientific theory such as marginal analysis. The authors feel apparently that for marginalism to be valid businessmen must somehow operate explicitly with revenue and cost curves and carry out the relevant marginal operations. This is more explicitly stated in a previous article by one of the authors where he states that a particular pattern of business behavior refutes marginal analysis since "In making such decisions, businessmen do not construct marginal revenue and marginal cost curves nor do they operate at a scale of operation that such curves would indicate if they were drawn."[7] I should hope that businessmen do not try to construct such curves at the present time, considering the time, effort and theoretical difficulties involved! Marginal price theory is not (at least yet barring the success of linear programming) a guide for businessmen to follow. Rather it is a theory explaining the behavior of firms whether or not they are aware of the theory; empirical tests relevant to the accuracy of output and price predictions are of course very much in order.

Moreover, it is not clear that what businessmen reply to a questionnaire constitutes a reliable guide to their actions. At any moment their scale of output is the end result of a complicated process of adjustment, most of which has been effected. Naturally any businessman might be expected to ignore most of this adjustment when queried and tend to oversimplify or misinterpret a present situation. At the very least an empirical study of business decisions should cover some period of time in order to trace the adjustment mechanism. It is thus an open question what significance a belief at a particular point of time has for business decisions. But I personally share Milton Friedman's skepticism as to the ability of most businessmen to accurately explain their behavior even over a period of time. Fortunately marginal theory does not require psychological introspection for its validity to be established; rather like any scientific theory it is to be judged as to the accuracy of the results it predicts.[8]

5. The investigation does not "contradict" marginal analysis. It does seem

[7] W. J. Eiteman, "The Least Cost Point, Capacity, and Marginal Analysis," *Am. Econ. Rev.*, Dec. 1948, XXXVIII, 899-904.

[8] See Milton Friedman, "Comment" on the essay by Richard Ruggles, "Methodological Developments," in B. F. Haley, ed., *A Survey of Contemporary Economics*, Vol. 2 (Homewood, Ill., 1952), pp. 455-57. See also a related comment in the same volume by A. G. Papandreou, p. 206.

to be faulty, however, even if interpreted on a more modest scale. No conclusion can be drawn as to the economist's average cost curve and its relation to capacity, since neither is adequately defined; and if the authors support "full-cost" pricing their questionnaire is not adequately framed to test this point. But it is not clear what significance can be given to businessmen's reactions in testing any conception as to price and output determination. The authors, however, are never clear as to what they are doing and what their terms mean, and their methodological misconceptions hardly constitute *the* point of criticism, as they might have otherwise.

MARSHALL KAPLAN*

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Comment

How unfortunate that the exotic and pugnacious pleasures of windmill-tilting have led Professor W. J. Eiteman to assert that the results of his unusually intelligent and unloaded questionnaire on the imagined shape of average cost curves constitute empirical refutation of something called "marginalism," an old enemy of his.

His results do overthrow the conventional U-shaped cost curves of conventional textbooks[1] and conventional review articles. Amen, and so much the better. But the U-shaped curves are not marginalism; they are merely pretty pictures, just as the hourglass figure is not the human female but the "foundation garment." We like our cost curves parabolic (*i.e.*, U-shaped) because it is so easy for the rudimentary mathematician to derive and visualize average-marginal relations from this particular shape. But marginalism as such assumes no curve types—U or V or W or any other. All are grist to the mill. Any of Eiteman's eight curve types is just as marginal (or just as antimarginal) as any other. His error lies in treating certain curve types as "supporting" and others as "not supporting" the "marginalist hypothesis." (References?) Strange things result. This writer, for example, considers himself a marginalist of sorts, albeit lukewarm and long-run.[2] Yet in classroom presentation, he likes to work with curves of the two types (6-7) found most realistic by Eiteman—and labelled "antimarginalist"! (What, in particular, is "antimarginalist" about the U-shaped type 6?)

The issue between marginalists and averagists in cost and price theory is a real one. Marginalism is not pure tautology, despite some unguarded statements by overenthusiastic proponents; it is perfectly possible for businessmen to act in an antimarginalist manner. Whether they do so act or not depends not on curve types but on whether they do (or should) base their price and output policies on marginal rather than average cost considerations, *when marginal and average costs diverge materially*. On this topic, the researches of Eiteman and Guthrie tell us little or nothing. And necessarily so, as a glance

[1] Among the notable exceptions is Lorie Tarshis' *Elements of Economics* (Boston 1946). Is Tarshis an antimarginalist because he foresook the U-shaped cost curve in favor of something like a beaver's front tooth?

[2] M. Bronfenbrenner, "Imperfect Competition on a Long-Run Basis," *Jour. Bus.*, Apr. 1950, XXIII, 81-93.

at his curve descriptions will show. The two most popular types (6-7) and one other type (8) are described so as to render AC and MC practically coincidental for most of the relevant parts of their ranges.[3] Where this is true, the whole marginalist-averagist controversy becomes a completely terminological or sham battle!

The empirical significance of Eiteman and Guthrie's results, as I see them, has nothing to do with the marginal controversy. Apparently the businessman's imagined zone of maneuver in adjusting output downward when price falls or when cost rises is conceived by the businessmen themselves as much smaller than textbook diagrams would lead us to imagine. Output restriction is cut off relatively early by rising costs in the case of curve type 7 (though not of type 6). Production must apparently stay at or near the least-cost point, regardless of cost or selling price, until the firm is forced out of business. Price changes are reflected directly and immediately in profit margins. This result, if borne out by further studies of this kind, rationalizes businessmen's antipathy to "chiseling," price-cutting, and "sales below cost" more easily than would the textbook world of U-shaped cost functions. But this is not antimarginalist. The conclusion, if valid, is as significant to a marginalist as to Eiteman, and equally conformable with his theory of cost.

M. Bronfenbrenner*

[3] I refer to the use of terms like "slightly" and "gradually" in the descriptions. The divergence is actually quite marked for Eiteman's type 6 as he draws it. The drawing, however, appears to imply zero or negative marginal cost over part of the range, and the same is true of portions of certain other curves as drawn. Eiteman and Guthrie's arguments should not be judged on the basis of diagrammatic slips of this kind.

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Rejoinder

Rather than attempt a line-for-line reply to my critics, I shall try to meet the general purport of their comments.

First, it is pointed out that if the average cost curve starts curving upward even slightly, the marginal curve shoots upward rapidly, so that the conditions of marginal analysis are met by my curve No. 6. Mathematically this is true but businessmen do not know much about mathematics.[1] The description that accompanied curve No. 6 was intended to suggest a situation in which the least cost point was *so near* to capacity and the subsequent rise of average costs was *so slight* as to render the difference between curve 6 and 7 insignificant. In this respect the curve, as drawn, was deficient but discussion with a few businessmen who answered the questionnaire suggests that they interpreted the curve as I intended. If so, then the businessman who sets his

[1] Besides it should be borne in mind that the average cost curve is derived from the marginal cost curve rather than *vice versa*. That is to say, a marginal cost curve may rise slowly as capacity is approached; it does not have to rise rapidly. Those critics who howl so loudly at the omission of "overtime" (or beyond capacity outputs) had better consider the effect of slightly higher marginal costs of thousands of overtime products upon the average cost of millions of regular-production units, before venturing too far out on this theoretical limb.

scale of operations on the basis of inflowing orders and inventory limitations would ignore costs and would strive to expand production to the limit rather than to curtail output 1, 2, or 3 per cent short of the maximum.

Secondly, it is argued that all that marginal theory says is that business men seek to maximize profits. Unfortunately this is not all that marginal analysis implies, for the theory suggests also a technique for maximizing profits. It would be foolhardy to deny that businessmen desire maximum profits. My argument is that the techniques they employ do not work towards this goal even when their actual cost curve is U-shaped. Given a U-shaped cost curve and a relatively elastic average revenue curve, the most profitable point of operation is admittedly that scale of operations where marginal costs equals marginal revenue. However, in the world of reality, businessmen are not given "cost and revenue curves," and if they believe that their least cost point is at capacity when it is not, then the equilibrium point towards which they bend their productive efforts is capacity and not the point of equilibrium of conventional theory.

Thirdly, one critic admits that businessmen are not guided by considerations of marginal revenue and costs but he contends that the theory, when properly understood,[2] *explains* business behavior nevertheless. In those cases in which the "guiding principles" of businessmen happen to lead to the same result as conventional theory suggests, the explanation offered by conventional theory does not conflict with facts. However, in those cases in which the "guiding principles" of businessmen lead to a different result than conventional theory, the theory does not jibe with reality nor explain managerial behavior.

Furthermore, it must be remembered that theory is used to *predict* behavior as well as to explain it. For example, the question of the probable effect of a state income tax was raised recently in Michigan. The corporations said, "We will pass the tax on to the consumer in the form of higher prices"; a well-known economist said, "an income tax cannot be shifted."[3] Without entering into the merits of his argument, it will be recalled that the proposition that an income tax cannot be shifted rests upon an assumption that the sales price set by a manufacturer for his product is on the demand curve (it is the maximum price that could be charged for that quantity of the product). In theory no businessman would sell for less; in practice they do. It is dangerous to attempt to predict what businessmen will do by reasoning from theories that are based upon what businessmen do not do.[4]

In conclusion, the objective of an economist is not to draw pretty pictures

[2] A person who "does not understand" is obviously anyone who happens to comment on the discrepancy between theory and the facts of life.

[3] The president of one of America's largest corporations is convinced that his firm has always shifted the income tax to its customers.

[4] Marginalists seem to obtain a great deal of comfort from the fact that businessmen occasionally engage in marginal type thinking. For example, a firm manufacturing 9,500,000 products might weigh the cost of sufficient advertising to sell another 500,000 products against the profit to be obtained from the additional sales, before deciding upon the advertising expenditure. However, this is something quite different from setting prices and production schedules on such considerations.

on a black board suggestive of hourglasses, female figures and marginal theories, but to devise a theory (1) that *explains* and (2) that *aids in predicting* the behavior of businessmen under varying circumstances. In the area of current discussion this means explaining how prices are set and outputs determined in the short run.

Obviously the decisions of business managers who do these things are (1) arrived at without reference to principles or (2) based upon a body of principles. Kaplan admits that businessmen do not use his principles as guides. It is hard to believe that businessmen do not use any principles as guides. Therefore the proper procedure would seem to be: (1) to observe what businessmen do, (2) to reduce the observations to principles, and (3) to base predictions and explanations upon the application of these principles. Elsewhere I have suggested what might result from following such a procedure.[5]

One question remains: would the prices and outputs set by reasoning from principles that businessmen employ coincide with those that would result from an application of conventional theory? The answer is: occasionally yes but more frequently no. Hence my suggestion that "short-run price theory should be revised in the light of reality."

WILFORD J. EITEMAN*

[5] See chapters 3 to 6 of *Price Determination, Theory vs. Practice*, by W. J. Eiteman (Ann Arbor, Michigan, 1949).

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Review of *The Economic Development of Poland*: Reply

Mr. Mandel's review of my book, *The Economic Development of Poland, 1919-1950* (the December 1952 number of this journal), was so unfair that a reply is necessary. His treatment of my handling of the interwar Jewish problem in Poland is particularly objectionable because he clearly implies that I was at least sympathetic with the anti-Semitism of that period. I should like to make it quite clear that any such implication is entirely unfounded. Mandel charges that, in my book, "Everybody, from the United States to Hitler and Stalin, is blamed for Poland's sorry plight, except the Poles themselves; but more than anybody else—the Jews" (p. 32). But on the page of my book to which he refers, I listed six different sets of circumstances which complicated the handling of the basic economic problems of interwar Poland; and the Jewish problem, one of the six, received no particular stress as compared with the other five. There is no basis whatever for the charge that I *blamed* the Jews for anything. What I did say, on page 103 (the other reference which Mandel gave), was:

> Some industries were almost completely dominated by Jews, for example, 94.7 per cent of the textile industry and 95.6 per cent of the leather and fur industry. The typical economic position of the Polish Jew was that of the small entrepreneur, and the concentration of two-thirds of the Jewish population within the cities presented a difficult problem in a country which had over 60 per cent of its total population engaged in agriculture, since the position of Jews in commerce and handicrafts blocked the natural channels of economic expansion of the non-Jew.

Mandel complains that I gave no reference for the figures cited. He failed to mention, however, that on page ix (which he cites), I explained that I lost in transit some of my research notes which contained the sources of these figures. He also failed to mention the supporting view of R. L. Buell (*Poland: Key to Europe*, London, 1939) which I quoted on page 104.

Mandel also takes exception to my treatment of "vast movements of population" (page 157), and says that while I decried bitterly the forced evacuation of a million Poles into Russia, I said nothing about "the three million Polish Jews driven from their homes into Hitler's extermination camps." Again the implication is that of sympathy with anti-Semitism. But my book was on the economic development of Poland, and I had no occasion to tell the complete story of the treatment of the Jewish people. And Mandel failed to mention that, on page 164, I quoted from a League of Nations report: "The rations of Jews amounted to half of the insufficient rations granted to Poles; and when the Jews were officially considered exterminated, no further issues of rationing cards were made to them."

J. Taylor

Rejoinder

1. Taylor heads his list of the obstacles to the solution of Poland's economic problems with "The economic aspects of the Jewish question." The fact that this one was listed first indicates to me that Taylor regarded it as the most important one of the six.

2. The real reason that I objected to Taylor's use of data (to support his view of the Jewish question) without sources was that, upon the basis of figures given in the last Polish prewar census (1931), I had very real doubts as to the correctness of his data. Nor am I impressed by the figures given by Buell.

3. I should think that the murder of three million Polish Jews was of as great economic significance for Poland as the removal of one million Poles (including 300,000 Jews) to Russia.

A. Mandel

MEMORIAL

Emanuel A. Goldenweiser

1883-1953

Emanuel A. Goldenweiser died at Princeton on March 31, 1953. For forty years Mr. Goldenweiser devoted his exceptional talents to the public service. His contribution to central banking thought, and particularly to the development of research in which he was a pioneer in the Federal Reserve System, cannot be measured. He was recognized and honored as a foremost economist, notably in the field of federal monetary policy. He will be remembered for those attributes which were so aptly described by the Reverend Mr. Bodo, pastor of the First Presbyterian Church of Princeton, New Jersey, in the memorial prayer at his funeral service:

> We thank Thee for the gentleness of his spirit which set the tone for all his relationships, within the family circle, among friends and associates, and in the wide reaches of his travels among men and nations. We thank Thee for his mellow, civilized wisdom and for his gracious sense of humor, quick to laugh but slow to judge.
>
> We are grateful to Thee, O God, for his enduring influence in the lives of his loved ones and friends; for his ability to communicate to others, humbly and informally, that integrity which shone through all his conversation and all his dealings; and for his devotion to young men whom he inspired with high ideals for the service of the Nation and the human race.
>
> We bless Thee, our Father, for his high regard of public trust and for his sensitivity to social and economic conditions which can do so much to enrich or to debase life, and for his constant responsiveness to human need, both near and far.

Born in Kiev in 1883, Mr. Goldenweiser spent his early life in Russia. After graduation from the First Kiev Gymnasium in 1902, Mr. Goldenweiser emigrated to the United States and entered Columbia University. He received a B.A. in 1903 and took an M.A. at Cornell University in 1905 and a Ph.D. in 1907. In the latter year he became a citizen of this country by naturalization.

His early studies and work were in the field of immigration, to which he was led by his special interest in Russian migration—the subject of his doctoral thesis—and by his concern for the human and social problems which this movement created. After receiving his degree, he served for three years as a research worker with the U.S. Immigration Commission. From 1910 to 1914 he was a special agent in the U. S. Census Bureau and from 1914 to 1919 a statistician in the office of farm management of the Department of Agriculture. In 1919 he entered the employ of the Federal Reserve Board as associate statistician and in 1925 became assistant director of Research and

Statistics. In 1926 he was appointed director of Research and Statistics and served in that position until 1945 when he became economic adviser to the Board. In 1946 he retired from the Federal Reserve and became a member of the Institute for Advanced Studies. He left the Institute in 1949 but remained in Princeton, studying, writing, and acting as a consultant on monetary and economic policy to, among others, the Committee for Economic Development.

Activities outside of the demanding duties of his work for the Federal Reserve Board were largely of a professional nature. He was active in the American Statistical Association and the American Economic Association, serving as president of the former in 1943 and of the latter in 1946. His contributions to cooperative efforts in coordinating governmental statistical and economic research activities were almost continuous, including membership in the Central Statistical Board and other interdepartmental groups. With a broad knowledge of world affairs and a versatility in languages, he was often called upon to participate in international conferences and was a member of the International Institute of Statistics.

Mr. Goldenweiser's published writings include "Immigrants in Cities" (Vols. 26 and 27 of *Reports of Immigration Commission*), 1909; (with L. E. Truesdell) "Farm Tenancy in the United States" (U. S. Census), 1924; "Federal Reserve System in Operation," 1925; two research studies for the Committee for Economic Development—"Monetary Management," 1949, and "American Monetary Policy," 1951; and numerous essays and articles. Among the last group, outstanding are his two addresses as president of the professional associations, some chapters in *Banking Studies,* published by the Federal Reserve Board in 1941, and "Jobs," the first of the series of *Postwar Economic Studies* published by the Board in 1945. It was largely, however, through unsigned articles in the *Federal Reserve Bulletin* and to a great extent through unpublished memoranda, off-the-record speeches, and just spontaneous comments that Mr. Goldenweiser made his greatest contributions to knowledge and understanding.

Mr. Goldenweiser made an outstanding contribution to the general recognition of the importance of economic analysis in government policy making. The progress of the Division of Research and Statistics and of economists generally throughout the Federal Reserve System is one institutional piece of evidence of this fact. His work in inspiring and assisting interdepartmental cooperation in the field of governmental statistics is another. He also played an important rôle in the establishment of the International Monetary Fund and the International Bank for Reconstruction and Development. One incidental by-product of the last was his successful insistence on the creation of the N.A.C. (National Advisory Council on International Monetary and Financial Problems) to coordinate U. S. international monetary and financial policy—today the outstanding example of effective interdepartmental cooperation in government policy formation.

Winfield W. Riefler
Woodlief Thomas
Ralph A. Young

BOOK REVIEWS

Economic Theory; General Economics

The Theory of Economic Policy in English Classical Political Economy. By LIONEL ROBBINS. (New York: St. Martin's Press. 1952. Pp. xii, 217. $3.00.)

This new book from the pen of Professor Robbins is a major event in contemporary economic literature. It touches upon the great issues of our science, and its treats of the towering figures from Hume to Mill who gave form and substance to economics.

Robbins' principal concern is the right interpretation of classical economics. The conventional picture of that era he finds distorted by the rise of a mythology that has turned the classical masters into caricatures—apologists of exploitation and opponents of social reform, who gloat over subsistence wages, care little for the welfare of the common people, and limit the government to the rôle of a night watchman. Robbins' aim is the restoration of the true picture of classical economics. This aim he pursues, in the main, by tracing the attitude of the classical economists on questions of public policy. The basic theme is introduced by a discussion of their view concerning the ends of economic activity and the system of organization most suitable for the realization of these ends. This is followed by a detailed appraisal of their theory of the economic function of government, and of their attitude toward popular welfare and collectivism. In the concluding chapter the classical movement is viewed as a whole from the wider perspective of the history of social philosophy.

Robbins' restoration of classical economics is a superb accomplishment. The picture which he unfolds on no more than 200 pages is far superior to the corresponding parts of the ordinary textbooks. His work is that of an analytical economist, and invites comparison with Cannan's masterpieces in its power of sustaining the argument in a systematic fashion.

How then does his argument run? The classical economists, he points out, considered consumption as the object of economic activity. With the end thus determined, they further held that it was best attained by means of a system of spontaneous cooperation. They are shown to have been public-spirited men rather than exponents of class interests. The harmony of interests which they claimed for their system was strictly limited. They were not indifferent to the fluctuations of trade, and in their speculations about money and credit they did not adhere to the belief in an automatic order that would not require regulation. Indeed, they recognized a substantial range of governmental functions, having been inspired by utilitarian empiricism rather than by the more dogmatic ideas of the physiocrats concerning a natural order. They did not view the system of economic freedom as a spontaneous or "natural" creation but as an artifact requiring conscious and sustained efforts to make it function properly. Interference with the working of the market

was conceived to be harmful only when the market conformed to their postulates. Interference with price or supply was accepted for public utilities and other monopolistic situations as well as in cases of special weakness of ordinary economic incentives. In the field of distribution, their works contain schemes proposing the drastic limitation of the inheritance of wealth. In the field of population, the gloom spread by Malthus' first *Essay* was dispelled by the possibility of improvement envisaged in subsequent editions. The classical economists recognized public functions in popular education and health care. They felt uneasy about the poor laws. Their works contain passages favoring restrictions on child labor and repeal of the anticombination laws. They did have misgivings about trade unions and collective action in general.

Having thus sketched the classical economists' system of economic freedom, Robbins goes on to explore their attitude toward socialism. Among the older generations of classical thinkers, from Hume to Senior, he finds only sporadic or implicit manifestations of attention to an issue which at their time was not fully joined. He refers to Hume's emphasis on private property and rejection of egalitarianism, to Smith's distrust of the central direction of economic activities, and to the similar views of Bentham; to Malthus' rejection of Godwin's egalitarian anarchism and of Owen's collectivism; to the critical attitude of the Ricardians toward Owen; and to Senior's verdict on the French revolution of 1848. Robbins then turns to John Stuart Mill, the only classical economist who concerned himself with socialism in a more systematic fashion. He interprets the apparent changes in Mill's attitude with profound understanding of Mill's complex character.

In his concluding appraisal of the general position of the classical group, Robbins emphasizes its character as a school of economic and social reform, which derived its prescriptions from utilitarianism and from a systematic body of scientific knowledge—the emerging science of political economy. Fundamentally, the utilitarianism of the classical economists was individualistic both with respect to means and to ends. It recognized, however, a substantial range of governmental functions as a prerequisite for the proper working of the individualistic organization of production. What then, and this is the last question posed by Robbins, was their view about the most desirable form of government? From Hume's philosophical conservatism the road leads to indifference in the youthful Bentham, later to give way to an appeal for representative democracy. To some this meant universal suffrage, and, while others pleaded for the maintenance of property qualifications, Mill came to favor a system of proportional representation combined with plural voting based on function and education. Robbins interprets this view as the expression "of an underlying anxiety, a scarcely suppressed fear: will the democratic society of the future have restraint enough to preserve the sacred liberty of the human spirit, and wisdom and self control enough to ensure its own progress and stability?—a momentous question to which, as yet, time has not given a convincing answer" (p. 205).

There is no need to elaborate further that content and form mark Robbins' book as a contribution of the first order to the history of economic ideas, a

field which has attracted only a few of the best minds among contemporary economists. It would be a difficult task to find an economist writing a prose more pleasing and persuasive than Robbins, and none combines a happier blend of urbanity and integrity. His present book, the product of lectures, has the inimitable charm of the direct address. Its value is enhanced by a wide selection of quotations from the original sources, by occasional references to an oral tradition now in danger of extinction, and by the light which it sheds on all but forgotten evidence on specific points (*e.g.*, the testimony of Pryme, cited on p. 121, which corroborates Bishop Otter in his preface to the second edition of Malthus' *Principles*). Also, the proper amount of attention is given to the economic ideas of Hume and Bentham, writers whose importance in the history of economic thought calls for more profound treatment than is usually accorded to them in secondary materials.

As Carl Menger pointed out over sixty years ago, the classical economists had the sad fate of having their history written by their opponents. Some thirty years later, Viner, in the sort of penetrating analysis for which he is famous, again established beyond all doubt that Adam Smith was not the doctrinaire advocate of *laisser faire* that he is so widely believed to have been. When all is said and done, one can but wonder at the persistence of a mythology which has been exploded at least once in every generation. The exploration of the factors which have contributed to so deeply rooted a misunderstanding might be an interesting task for a student of the sociology of knowledge. Let us hope that Robbins' work proves the definitive one, or, if it does not, that to the next generation of economists there will come again as civilized an appeal against an apparently perpetual wrong.

HENRY WILLIAM SPIEGEL

The Catholic University of America

The Rate of Interest and Other Essays. By JOAN ROBINSON. (New York and London: Macmillan. 1952. Pp. viii, 170. $2.00.)

The title of Mrs. Robinson's latest book is curiously modest since one of the "other essays" is entitled "The Generalization of the General Theory." Her main effort is to break through the short-run Marshallian confines of the *General Theory*. She frankly acknowledges her great debt to Harrod[1] and like him puts her faith in a marriage of the Keynesian statics with the classical dynamics. (From the present point of view it is irrelevant that he reads Ricardo while she reads Marx.) She has completed her long struggle of escape from Marshall. Her recognition of Kalecki as an independent discoverer of the *General Theory* is an overdue tribute from Cambridge to that distinguished economist.

Perhaps because of its scope and the difficulty of its subject matter, this book lacks the crisp lucidity of Joan Robinson's earlier work. That is one reason for the belatedness of this review. While one is continually impressed with her insight and shrewdness along the way, it is difficult to appraise the whole. In this review I shall attempt first to set out the various propositions

[1] R. F. Harrod, *Towards a Dynamic Economics* (London, 1949).

that she seeks to establish and then to make some comments on the work as a whole. In doing so, I shall take some liberties with the order in which she presents her ideas.

Her main theses, stated either directly or by implication, are:

1. Uninterrupted and steady economic growth is possible, but there are no economic forces at work that tend to establish it. On the contrary, the vicissitudes to which the economy is exposed would disturb the steady rate of growth even if it were achieved by accident.

2. These vicissitudes generate either booms or depressions. Booms continue till some "bottleneck" is reached. Depressions descend to a not too clearly defined floor.

3. The "business cycle" is a succession of responses to such vicissitudes rather than the result of a self-perpetuating tendency of a private-enterprise economy to fluctuate.

4. The rate of interest cannot be made to function as a regulator of economic activity that will ensure a steady rate of growth.

5. The course of innovation may affect the distribution of income in directions favorable to capital, or favorable to labor, or it may be neutral in its effects.

6. There is no especial virtue in a steady rate of growth. In particular, it may be associated with increasing unemployment.

Let us now consider these points in some detail.

1. The condition for a steady rate of growth is essentially the familiar Harrod-Domar requirement that the rate of growth of income or investment be appropriately related to the coefficient of capital requirements and the marginal propensity to save. In Harrod's terminology, $G_w C_r = S$, where G_w is the "warranted rate of growth," C_r denotes marginal capital requirements, and S is the marginal propensity to save, with technical progress assumed to be neutral.[2] This condition is simply an elaboration of the condition that for steady growth the normal increase in savings and the normal increase in investment must be equal.

The authors assume that the three factors involved are independent of each other and that if the steady growth of the economy is disturbed by some shock or irregularity there will set in a cumulative movement towards boom or depression with no tendency to return to the condition of steady growth.

Balanced growth must clearly require some degree of consistency among rate of growth, investment per unit of output, and saving. But to pin so much faith (or cynicism) on this particular formula is to go too far. In the first place, the formula is based on the modern revival of the old fashion of assuming "fixed coefficients"—which means throwing overboard the one important achievement of the neoclassical economics. Secondly, as Mrs. Robinson clearly recognizes, the concepts rate of growth and capital requirements are essentially vague. This vagueness is reflected in the statistical difficulties involved in their computation and is obscured by the precision with which the results are

[2] See *The Rate of Interest*, p. 93, and Harrod, *op. cit.*, Lecture 3, for full exposition of these conditions.

presented or discussed. If the analysis were presented with a clear recognition of the width of the confidence intervals surrounding the factors in the equation, it might create a very different impression.

2. I find Mrs. Robinson's discussion of "vicissitudes" one of the most useful and stimulating parts of the book. Her treatment of the supply of land has an attractive Ricardian ring—although she is concerned with the effect of land scarcity and rent on the Keynesian propensities rather than on the Ricardian wage-profit relation. She concludes her discussion of thriftiness with a welcome degree of scepticism about the existence of long-run tendencies toward under-consumption. Her discussion of population increase leads to the uncomfortable result that unemployment may result from rates of population increase that are too rapid or too slow. The discussion of finance, the emphasis on the distinction between finance and saving, and the relation between them are all valuable contributions to economic analysis. On the other hand, her de-emphasis of the price system is hard to get used to.

I am puzzled by the relation intended between Mrs. Robinson's list of vicissitudes and the booms and depressions they are supposed to explain. Most of the vicissitudes seem to be of the kind that would occur gradually over a long period of time. Yet they are essential elements in her explanation of the booms and depressions we associate with the business cycle. On the other hand, the notable exogenous disturbances, particularly wars and their aftermaths, which undoubtedly do produce booms and depressions, are not mentioned at all.

3. Mrs. Robinson is unsympathetic with attempts to establish the existence of business cycles. She states:[3]

> In those theories which purport to find a cyclical mechanism in a private enterprise economy, I have the impression that the weakest chapter is always the one which treats of revival from a depression. And it seems to me that this is no accident. I take leave to doubt (though with all due hesitation and reserve) whether there ever has been a trade *cycle*—that is, a self-perpetuating cyclical movement, as opposed to a series of fluctuations due to the propensity of a private enterprise economy to exaggerate its response, either way, to the chances and changes of history as it meets them.

Presumably, this point of view leads Mrs. Robinson to treat the third distinguished member of the Harrod family, Hicks' *Trade Cycle,* with scant attention. And while praising Kalecki, she pays no attention to his pioneer work in business cycle theory.

The lack of a theory of the mechanism of the business cycle leads Mrs. Robinson to the view that an expansionary vicissitude leads to a boom that ends in a bottleneck. A contractionary one leads to a depression (with limits not clearly defined). The only inkling of the mechanism of an expansion crisis and collapse we are given is contained in two short paragraphs:

> When the rate of investment rises relatively to what it has been in the recent past, consumption increases, in accordance with the short-period

[3] P. 142.

marginal propensity to consume, and there is a secondary wave of investment in working capital, and a further increase in consumption. Now in some lines producers find themselves in a seller's market (demand exceeding capacity) and the optimists among them (or those with strong animal spirits) acting on the assumption that the demand will last, place orders for equipment to enlarge their capacity. So the upswing in investment amplifies itself.[4]

At some point the rise in the rate of investment reaches a limit (we shall return to this point in a moment) and income reaches a maximum. Meanwhile new plants have begun to emerge from gestation; soon there is more capacity to cater for a rate of outlay that has ceased to rise. The sellers' market disappears (at best capacity only just catches up with demand—more often it overshoots the mark). The rate of investment therefore falls off, income declines, and the boom collapses.

The subsequent depression ends when something turns up:

It seems to me that the most plausible theory of the revival is Mr. Micawber's: given time, something will turn up. That is to say that a depression will not last forever because some fresh opportunity for investment is bound to present itself sooner or later.[5]

With respect to bottlenecks, Mrs. Robinson rejects full employment, finance and land as ruling factors and concludes that industrial capacity is the crucial bottleneck. Her demonstration of this point is intuitively plausible but not logically convincing. She gives no compelling argument why resources cannot be shifted from increasing the output of consumers goods to increasing capacity—if capacity becomes short. If that can be done, the boom can continue so far as this particular bottleneck is concerned.

While I sympathize with Mrs. Robinson's aversion to an overformalized business cycle theory, I feel that her own discussion leaves far too much to be explained. I invite the reader to decide for himself how well her theory fits the facts of the last thirty years.

Mrs. Robinson is particularly concerned to demonstrate that interest rates will not serve as a stabilizer of the economy. First of all she emphasizes the point that will be widely accepted: that automatic adjustments of interest rates cannot be relied upon. While the process of inflation will raise the market rate if it happens to be below the full-employment rate, there is no effective mechanism to reduce a market rate that is higher than the full-employment rate. And deliberate action by governments to that end may do more harm than good if the authorities lose their nerve.

But even if the authorities do take action, the effects are likely to be less than is commonly supposed. Mrs. Robinson believes that we have been misled by our habit of thinking in terms of a single rate of interest. When the whole structure of rates is considered, she contends that increases are likely to be ineffective in controlling a boom. She reaches this conclusion largely as a result of including the yield on stocks as part of the complex of interest rates.

[4] Pp. 126, 127.

[5] P. 142.

(It will be remembered that Keynes in the *General Theory* included the yield on stocks in the marginal efficiency of capital side of the picture.) Mrs. Robinson argues that as an upswing progresses the yield on shares tends to fall, even though other interest rates increase. Consequently, businesses can raise capital on increasingly favorable terms so that the interest rate structure places no impediment in the way of a boom.

With the modern separation of management from ownership, the yield on shares undoubtedly bears some kinship to interest rates, and this should be recognized. On the other hand, the reason why the yield of shares declines in the upswing is simply that shares do represent an equity in the business and this distinguishes them from fixed interest-bearing obligations. The only adequate nomenclature is one which recognizes the equities as a separate category, to be identified neither with fixed interest contracts nor with investment in plant and equipment.

The existence of equities as a separate category probably does diminish the influence of increases in interest rates in checking a boom. But it need not eliminate that influence. The monetary measures that raise interest rates also render the yield on shares higher than they otherwise would be. There is no danger that monetary restriction will aggravate the boom.

The real point about monetary policy seems to be that, because of timidity or good judgment, the monetary authorities are unwilling to go far enough to stop booms or to cure depressions. But central bank operations on the scale required may have consequences that can only be discovered by experiments that no one is willing to undertake.

My concern with these major points prevents me from doing justice to Mrs. Robinson's elegant treatment of expectations and her interesting paradoxes such as "a rise in the rate of interest which is expected to be reversed is a greater deterrent to investment than one which is regarded as permanent."[6]

5. The chapter on the Economics of Technical Progress seems to me to be the least satisfactory in the book since it is almost entirely devoid of empirical content. The rest of the book is based on premises that the author believes to be true and which critics can attempt to refute. This chapter defines various categories of innovation and traces their economic consequences. But it makes no attempt to predict the kinds of innovation that will actually occur. While the definitions are useful and provocative, we are about as we were with respect to our knowledge of the effect of technical progress on the distribution of income. This is a field which I fear the theorist may have to yield to the historian.

6. The steady rate of growth as formulated by Mrs. Robinson or Harrod may be associated with increasing or decreasing unemployment and increasing or decreasing inequalities. Capitalistic development is governed by "fixed coefficients" which relates the behavior of the system as a whole to the character and extent of investment. And the nature of the growth itself is apparently uniquely determined, although not explained by Mrs. Robinson's system. She does not inquire whether public policy can achieve a steady rate

[6] P. 121.

of growth that is desirable in other respects. I surmise that she is too much of a Marxian merely to indulge in wishful thinking and not enough of one to accept the full implications of the deterministic position.

Apart from these comments on the positive aspects of Mrs. Robinson's theory, there are two general sins of omission to which special attention should be drawn.

In the first place, through her neglect of the relative price system, she may have neglected an important stabilizing influence in the economy. It is possible that the behavior of relative prices and the principle of substitution produce a tendency towards general equilibrium that holds fluctuations within reasonable bounds. The extraordinary stability that the American economy has shown since the war lends color to this view and leads to the hope that the depression of the 'thirties may not have been a normal occurrence of the later stages of capitalistic development. I have no desire to become labelled an anti-aggregator. We must think in terms of reasonably broad aggregates in order to think at all about major economic questions. But it is equally important to remember that we are dealing with nonhomogeneous aggregates whose behavior cannot be appraised unless we keep the workings of the relative price system not too far in the back of our minds.

Secondly, Mrs. Robinson does not discuss the central question of entrepreneurial motivation. Schumpeter, Keynes, Marx, and Marshall all provide theories, although conflicting ones, of what leads entrepreneurs to invest or innovate. Mrs. Robinson (and Harrod) merely provide a mechanism and do not tell us what determines how hard the entrepreneurial foot is pressed on the accelerator. While theories of entrepreneurship are eminently unsatisfactory, I do not see how we can escape the need to select the hypothesis that is least likely to be wrong or which will lead to the least undesirable consequence if it is wrong.

I confess that I conclude this review with a less sympathetic view of Harrodian dynamics than I had when I began it. The three protagonists, Harrod, Hicks, and Robinson, with essentially the same tools of analysis, reach widely differing results. Harrod finds a chronic tendency to underconsumption. Hicks discovers at the end of his book that the real trouble is monetary and that if policy could confine fluctuations to his "real" cycle all would be well. Mrs. Robinson paints an agnostic picture of capitalistic instability. While they all deserve great credit for recentering attention on economic growth, the *General Theory* has not yet been successfully generalized.

Arthur Smithies

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Die Theorie der Einkommensverteilung. Entwicklung und heutiger Stand. By Viktor Zarnowitz. (Tübingen: J. C. B. Mohr (Paul Siebeck). 1951. Pp. 275.)

The history of economic doctrines, as a method of training economists and as a subject of study, has declined in relative importance during recent

decades. This is an almost inevitable consequence of the rapid growth of economics as a specialized science, but it has probably meant some loss in perspective. Moreover, it may be argued that the writing of doctrinal history is a task for mature economists with long working knowledge of their special fields, rather than for a young man. Dr. Zarnowitz attempted a survey of the theory of distribution as a doctoral thesis. But although he may wish to rewrite (and shorten) it in twenty years' time, he has done a useful service, particularly to the German-speaking economist, in presenting and analyzing German as well as recent Anglo-American contributions to the subject which cannot be well-known in Germany. The older classical theories of distribution are dealt with rather cursorily, and the book really begins with the theory of imputation developed mainly by the Austrian school of economists, which shades over, however, into the modern theory of marginal productivity. The conceptual framework of this theory is analyzed in much detail, both in its micro-economic applications for conditions of perfect and monopolistic competition, and as a method for determining the share of factors in the national dividend. The partial analysis follows familiar lines and is undoubtedly competently done. The author takes, on the whole, the position which Machlup had developed in his criticism of Lester's empirical studies. It certainly makes the logic of micro-economic theory of marginal productivity unassailable, but does it not destroy at the same time its scientific character, by making verification well-nigh impossible?

The determination of absolute and relative factor shares runs into heavy weather as soon as the classical assumptions of perfect competition and full employment are relaxed. The author is fully aware of the difficulties and stresses the need for further work, particularly on the special factors influencing the price formation of factors of production. He analyzes, for instance, in connection with Oppenheimer's theory of the agricultural frontier, the importance of the unequal distribution of wealth for the supply conditions of the labor market and the tendency for given distributions to reproduce themselves. There are interesting discussions about different distributional principles in different economic systems, but this last part of the book is on the whole less rigorous and less well-planned than the earlier chapters, and could be omitted without much loss. It would be wrong to hold this against the author, who has certainly proved his competence and skill in the field of distributional theory.

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Unternehmergewinn und Arbeitslohn. By Erich Carell. (München: Richard Pflaum Verlag. 1950. Pp. 176. DM 19.50.)

Professor Carell, like many other economists, is dissatisfied with the development of the theory of profit since Marshall, and turns in particular against numerous attempts to explain profits as a residual income imputable, say, to entrepreneurial ability. The premature introduction of subjective factors in his view undermines the objective basis of such fundamental con-

cepts as the optimum size of the firm, or the optimum combination of factors, and hence the very notion of equilibrium. Profit is not the reward for a factor of production, be it risk or entrepreneurship or management. Payments for risk taking, interest on capital, or rent, and for management, are rightly included in the average cost curve. Profits (*Unternehmergewinn*) can only arise through objective economic changes, and the change the author considers at length is the gradual introduction of technical innovations. The analysis assumes perfect competition, price flexibility and mobility, and is conducted in terms of comparative statics. When the system is in equilibrium, all firms within an industry will use the same factor combination and be of equal size. Excess profits will be zero for all firms. Assuming neutral money, technical progress will secure differential profits for the pioneers which will, however, be matched precisely by losses of other firms, so that profits for the economy as a whole in these "dynamic conditions" are again zero. Loss firms will not fully recover their depreciation allowances but the differential profits of the pioneer firms will be enough to keep aggregate capital intact in money terms. Prices will, of course, fall with the increase in output associated with technical improvements. Real factor incomes will rise and so will purchasing power of capital that has been maintained constant in money terms. There will be neither over-employment nor under-employment throughout the process of adjustment. Marginal producers will continue as long as they cover variable cost, and loss firms can only introduce new machinery when their depreciation allowances, augmented by differential profits of other firms, are sufficient to enable them to buy new equipment. As technical improvements spread to other firms prices will fall further, and the system will come to rest only when all firms are working again with the best technique and all profit differentials have been wiped out.

Given the explicit and implicit assumptions of this model, most of the deductions seem to follow logically. In fact so perfect appears the working of this simplified model that Carell uses it as a norm for economic policy. If, for instance, a policy of neutral money is abandoned and technical improvements are accompanied by credit expansion designed to keep prices stable, real wages will fall, higher profits will accrue to the pioneers, while marginal producers will not make losses. On the stringent assumptions of the model this is, of course, a *non sequitur* since credit expansion will simultaneously affect commodity prices and factor prices and hence inflict losses on the marginal producers. The assumption of a sluggish response of wage rates to monetary expansion in a situation of full employment may or may not be realistic, but it seems to introduce time lags which otherwise are consistently kept out of the system.

Carell is, of course, in good company when he uses his simple logical system as a stick to beat all the sinners of the real world: monopolistic practices, government interference, credit policy, and so forth. But it might have been more instructive if he had relaxed some of his over-simplified assumptions and investigated, for instance, technical improvements requiring more capital per head, or capital-saving inventions, or the effects of varying rates of innovations on the system as a whole, or the impact of innovations in conditions

of underemployment. His analytical base seems to the reviewer to be too narrow to carry the policy implications which are drawn from it.

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Dimensions de l'homme et science économique. By JEAN-LOUIS FYOT. (Paris: Presses Universitaires de France. 1952. Pp. 355. 1400 fr.)

The volume under review is one of a series of publications issued under the auspices of the Bibliotheque de Philosophie Contemporaine of Paris, France. The numerous publications of the Bibliotheque appear to fall into the following categories or sections: Psychologie et Sociologie, Historie de la Philosophie Generale, Morale et Valeurs, and Logique et Philosophie des Sciences, in which last category Fyot's contribution takes an honored place.

In a delightfully written preface Fyot informs his readers that Aspects of Man and Economic Science (free translation of the French title) is not a review of historical economic thinking but rather an examination of contemporary political economy. He proposes to deal only with problems which have continually faced mankind regardless of whether or not these problems have been examined in scientific studies. His justification for this position is that contemporary problems embody problems universal in time and therefore their treatment does not require a review of various economic schools.

Following the Preface comes a lengthy Introduction in which he considers what he deems to be the two chief phases of economic thought, liberal individualism and the socialism of Marx. He pays his respects to the Physiocrats, yet holds that it is with Adam Smith and J. B. Say that political economy finds itself promoted to the rank of an exact science. Passing to Karl Marx he asserts that Marx pretended to erect a science of economics which would at the same time be a philosophy of man but wound up by working out an economic system which absolutely contradicts man's aspirations.

By far the major part of the volume is devoted to the social, individual and human aspects of man and economic science. In Part I, under the head of The Social Aspect, he notes the underlying relations between producers and consumers, stressing the reciprocal dependence of economic functions and the solidarity existing between producers and consumers. Toward the end of this part he takes up theories of general equilibrium and disequilibrium and concludes with a thoughtful study of the interdependence of nations.

Part II, entitled The Individual Aspect, begins with an account of the economic calculations and behavior of individuals, discusses the planning procedures between which entrepreneurs must choose, goes at length into the topics of private and national saving and investment, and ends with a presentation of the difficulties posed by international economic fluctuations.

In Part III, where the author deals with The Human Aspect, he feels constrained to remark that the concrete limits of political economy, as a science, are at bottom those of the economic subject himself within his objective mani-

festations. Here we run into the insuperable difficulty that there is no rule of conduct to which man conforms. He refuses to act in accordance with the dictates of reason. Since both the agents and the ends of economic research are concerned with human behavior, he further maintains, all hope that political economy can ever become an exact science must be abandoned. Economic laws, as rules of conduct, can never pretend to come to the exactness, for example, now approached in the laws of the physical and chemical sciences. Like the moral or juridical sciences in which man's behavior constitutes the center of research, political economy is thus by its very nature a normative study. Incapable of satisfying to the full his individual and social aspirations man is perforce obliged, under penalty of violating the laws of human conduct, to pursue incessantly an ideal which he knows is inaccessible.

Is there accordingly no answer to the enigma of man's destiny? This question remains without an answer, he replies, unless the answer is found in the love of God. The existence of a God who is Love, and whose love provides the same bond between man and man and between man and nature as between man and God, guarantees by His transcendence no less than by His eminence the worth of efforts undertaken to promote, here below, the demands of love inscribed in the hearts of human beings, of which demands economics has revealed to us one phase. Is not the love of God, he concludes, the ultimate question with which the economist and the philosopher ought to concern themselves in their research?

The subtle and elusive rôle which normative concepts and ethical preconceptions have played in economic thought from antiquity to the present time is a rôle that has long enlisted the attention of not a few gifted thinkers. No volume has come to my notice which attempts with greater care the extremely difficult task of treating all the social sciences as inevitably ethical in content and character. That Fyot's deft analysis is by no means the final answer, in my opinion, to the issues which he has raised is in no way a reflection upon the artistry with which he has endeavored to resolve a problem which is possibly unresolvable. Thoroughly documented, with evidence throughout of a broad and sympathetic understanding of economic literature, and written with typical Gallic charm, his book is an admirable example of the emphasis which should rightly be laid upon the human aims of the economic system, an emphasis, incidentally, with which few will quarrel.

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An Introduction to Economic Analysis. By J. K. Eastham. (London: English Universities Press, Ltd. 1950. Pp. vii, 392. 15*s.*)

A Course in Applied Economics. By E. H. Phelps Brown. (London: Sir Isaac Pitman & Sons, Ltd. 1951. Pp. viii, 434. $5.75.)

The writing of textbooks in elementary economics seems at times to be a rather distinguished form of "disguised unemployment." There is practically no marginal social net product, and one would guess, very little of the private.

Freshness of material, novelty of approach, and distinction of style are missing, and about all that is done is to change the chapter order, and to substitute 1952 data for 1951 data so that the publishers can proclaim that their offerings are "timely." But books such as the two here reviewed cannot be dismissed on these terms. They are new; they have been written because their authors felt that they would meet a need not now recognized; they are clear; and without doubt they are both useful. Neither may serve adequately as one of the books to be given to beginning students, but both deserve careful consideration. And for American use each can be strongly recommended for certain courses above the elementary level.

Mr. Eastham's *Introduction* packs into a relatively small space (about 400 pages) a great deal of what goes by the name of economic theory, at both the micro- and macro-economic level. By this I mean that it introduces the reader to most of the economist's tools of analysis—to indifference curves, the marginal productivity function, to the marginal revenue when a monopoly discriminates, the marginal propensity to consume, and many others. What it does not do, and for many this will prove a serious omission when they consider adopting the book for an elementary course, is to show the uses to which these analytical tools can be put. It is a book about economic theory rather than about an economy. And for this reason it is difficult without being, at the same time, rewarding—at least for use in this country. It would be a valuable reference book for students who have gone well beyond the introductory course and who have got the feeling of what economics is all about, but to use it at the beginning level would mean deadening the interest of most students, and giving to the rest a false picture of the subject. Despite this, it is a distinguished book which, though it fails in its announced aim (for the American beginner, anyway), rarely says a wrong thing. (But is it true that the rejection of Say's law depends mainly upon the fact that the process of supply is not instantaneous?) It could be studied very profitably by anyone who, finishing his undergraduate work, wanted a bird's-eye view of what he had learned.

Professor Phelps Brown's *A Course in Applied Economics* is, as the title suggests, in some ways at the opposite pole. It has not been written to set out analytical tools; instead its function is to show how they can be used. The reader is presumed to have studied theory and he is in this book brought up against "real" problems and shown how analysis mixed with judgment can provide solutions. The problems with which it deals are wisely chosen so that most aspects of the functioning of an economy are considered. The working of the pricing mechanism is carefully examined not in the abstract but by dealing with such problems as the formulation of policy for monopoly, and the pricing policy to be followed by nationalized industries. This whole treatment is unusually clear and yet brings out what economists would like their students to learn—that the answers are not likely to be found in simple slogans. In addition, problems of income stabilization and international trade are considered. Here again the treatment is excellent. This book deserves a place somewhere in the curriculum for it paints a very clear picture of how economists work. It could be used successfully as a supplement to an intro-

ductory text which presents basic theory, though it would probably prove even more valuable at a subsequent stage. While it is concerned with the problems of the British economy, this should not, I believe, reduce its value in this country.

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Economic History; National Economies; Economic Development

Enterprise and Secular Change—Readings in Economic History. Edited by FREDERIC C. LANE and JELLE C. RIEMERSMA. (Homewood, Ill.: Richard D. Irwin, for the American Economic Association and the Economic History Association. 1953. Pp. xi, 556.)

There are good reasons for feeling well disposed towards this volume of readings in economic history. Its appearance suggests that economic history is no less alive and worthy of consideration than price theory or the theory of international trade—he who comes last is not necessarily least; and a volume which is the result of collaboration between the American Economic Association and the Economic History Association must make a strong appeal to all those who value progress in both economics and economic history and who believe that contact between them can lead only to the enrichment of both.

Within the covers there lies—as was said about a sheep's head, although Professor Gay has it that it was a haggis—some "fine, confused feeding." The volume is divided into three sections: the first dealing with Business Units; the second with Money and Prices; and the third with Method. Each of these sections contains some excellent articles (or selections from published work): one remembers especially the brilliant contributions by Gay, Heckscher, Mitchell, Nef, Sombart, Spiethoff and J. H. Williams. The variety is very great with respect to period, location and subject matter; from the Italian Cities of the Renaissance to the Growth of the Large Corporation in America, from the monetary theories and policies of Gustavus Vasa to Ricardo and the Bullion Report. There is writing by scholars from six countries, dating from 1890 to 1949. Of course the selection will appear ideal to hardly any reader, perhaps to no reader; and it would be easy—too easy—to reel off a list of names which one might have expected to find included but does not. What strikes one first, and what matters far more, is the range and variety of the contents.

Thus Section I begins with a series of excerpts from Schmoller and ends with Cole's "Approach to the Study of Entrepreneurship"; Section II begins with Wesley Mitchell's stimulating "The Role of Money in Economic History" and ends with John H. Williams on "The Crisis of the Gold Standard." But as the reader reaches this point he begins to wonder what principles have dictated the choice of articles. Is the book really as orderly as the division into sections would make it appear? It would not be claimed, surely, that each of these articles in the first two sections is the best available on its subject, having regard to the state of knowledge and opinion in 1953; nor are all of them rare articles, difficult of access (although admittedly five

of the twenty-one essays in the first two sections are translated for the first time into English); nor could all of them be regarded as path-breaking contributions to economic history. There is, it is true, some sense of unity, especially in Section I which emphasizes the centuries-long importance of the man of business in the western world and illustrates, besides, the long process of building up and breaking down theories of "economic stages." But articles on so many themes, by so many different hands, coming from so many countries and originating in so many points of view must present rather a disorderly appearance, must leave the reader wondering what economic history is about and what its practitioners would be at—and this is true even of the reader who thought that he knew the answers to these questions before he opened the book.

It is, however, here that the editors, possibly foreseeing this troubled state of mind, cunningly insert their section on Method: one article each by Gay, Clapham, Heckscher, Spiethoff, Simiand and Bloch. Of these articles, three appear in an English translation for the first time. This section is rather like the last volume of *À la recherche du temps perdu:* it resolves, or at least partially resolves, a number of doubts and problems. It focuses attention on the two grand questions: What is the purpose of studying economic history? What (even more insistently one finds oneself asking this question, prompted by the whole idea of the book)—what is the relationship of economic history to economic theory?

Few economists or economic historians can be happy about present-day relationships between economic theory and economic history. These two aspects of what might be supposed a unified discipline too often seem extraordinarily dissimilar. In the work of Marshall (himself, as Schumpeter, reminds us, an economic historian of the first rank) theory and history went hand in hand; but in whose *Principles* since Marshall's does history find an integral place? There seem to be two reasons for this alienation of history from economics. First of all, the years between 1890 and 1940 or thereabouts saw economists increasingly concerned with the study of equilibrium positions; and economic equilibrium is not an historical concept. Secondly, economists have recently become increasingly concerned with prediction. Now in prediction only short time periods can as a rule be considered, because demand changes, technological changes and political or social changes have to be eliminated as uncertainties. It is not true that they are not certain because not man-controlled, but they are simply regarded as beyond the convenient limits of the system. Therefore it is in a sense true to say that if economics is to be a system capable of prediction it must be a short-run economics. (And of course it is open to anyone to suggest that attempts to construct a systematic view may lead to the advocacy of a systematic economy into which change enters only at a controlled rate. Whether this is either possible or desirable is, however, an altogether separate question.)

Fortunately, there has been a reversal of the first of these trends in the last ten or fifteen years. Economists are now increasingly interested in problems of change and uncertainty, and with respect to these the study of economic history should be of the greatest importance. (The problem of entrepreneurial decisions, for example, seems especially suitable for historical treatment.) But

here we return to the problem implicitly posed by the volume before us; even when economic history is not mere "total immersion in a bath of appearances" it can still be anything from *Der Moderne Kapitalismus* through Heckscher's "Natural and Money Economy" to Williams' "The Crisis of the Gold Standard." Are all these styles of thinking equally valuable and equally suited to effecting a reconciliation with economic theory?

Enterprise and Secular Change seems to suggest that there are three kinds of economic history. There is economic history simply for the sake of knowledge—for Light, in Pigou's phrase, not for Heat (although the difficulty here is that all knowledge, as Collingwood emphasized, must be organized in some way, and it is not always clear in what way this kind of knowledge is being organized); there is economic *Gestalt* theory, for both Light and Heat; and there is economic-historical classification and generalization for, in the opinion of the present reviewer, neither Light nor Heat. Each of these types has its practitioners and supporters. (A particular regret about the choice of articles, this time too keen to be suppressed, is that the editors, while giving us Spiethoff's own analysis of economic *Gestalt* theory, did not also give us a specimen of it by abstracting some passage from *Krisen.*) The relationship of the first and last of these types of thinking with analytical economics is unlikely to be either close or constructive; hope (for those of us who do hope for these things) lies chiefly in economic *Gestalt* theory of some sort. And here, it would seem, the economic historian may re-form the theorist's picture by stressing the shifting motives, the varying underlying social forces, the factors influencing demand and supply in the long run, the extraordinary complexity of the "real" world (as in Nef's masterly analysis of capitalism in France and England between 1540 and 1640, where not a few of our modern "discoveries" or rediscoveries about the inflationary process are anticipated). Thus the study of economic history should help to make the assumptions from which theory begins as reasonable for each environment and as clearly stated as possible.

Whether it was the intention of the editors of this book to provoke thoughts such as these is not clear; they seem, to judge by the Preface, to have had rather too many aims for comfort, and one trembles to think what the effect of the book might easily be upon "young scholars starting upon their own investigations" (p.v.), for whom, it is suggested, the book is suitable. But there can be few established economic historians or economists whose economic view will not be widened by reading this volume and reflecting upon their own work in the light of the conclusions which it helps them to reach; for it stimulates and provokes as well as enlightens. It reveals a handsome part of the great spectrum of economic history; it should stimulate us to fresh enterprise of our own, undertaken with a sharpened sense of purpose.

One last word. May we hope that those responsible for *Enterprise and Secular Change* will think now of a second but slightly different volume, *A Survey of Contemporary Economic History* or—to paraphrase another and an older title—*Essays on Some Unsettled Questions of Economic History?*

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Winchester, The Gun that Won the West. By HAROLD F. WILLIAMSON. (Washington: Combat Forces Press. 1952. Pp. xvi, 454. $10.00.)

Students of American economic development can readily agree with the author's statement that "Understanding of this period of American history is still incomplete." Hitherto, the stress has been mainly on our abundant natural resources, the phenomenal development of technology, the rapid increase of population, laws and decisions of courts, and so forth. Such accounts are barren when it comes to an understanding of the dynamics of our development. The invisible, intangible operating forces have been neglected, including such factors as individual initiative, imagination, vision of the future, "drive," and willingness to take risks. In this volume, with reference to the Winchester enterprises, the author supplies the necessary elements. He presents not only the development of the arms industry, but the capacities and personalities of leaders in this business.

The account covers the period from about 1855, when Oliver Winchester the founder, became interested in firearms, to about 1932 when the Winchester organization became an important part of the Olin industries. For men who could see them, opportunities lay before the eyes of prospective producers of arms. For one thing, fabricators abroad did not understand the requirements of users in this country. What worked for small game hunting did not work for large wild animals, and when the purpose was to fight Indians a gun that discharged one bullet and had to take time out for reloading was not much protection against charging Red Men. Moreover, expert riflemen were punctilious in their choice of guns. With us firearms had to be adjusted to the individual requirements of the users.

The author indicates that a small domestic industry began to appear in America in late colonial times, helped along by immigrant artisans from Germany and Switzerland. The advent of Eli Whitney, the inventor of the system of interchangeable parts, contributed an advantage to workers in this country. Oliver Winchester was not a pioneer in this industry, but he helped to prepare the way for better methods of production and for new types of arms. Prior to his entrance into the arms business he was a merchant selling men's furnishings. The author described him as "a new type of entrepreneur in the fire-arm industry." His predecessors in this business were inventors and skilled mechanics. In our history a shift of objective was not unusual, as was the case with Eli Whitney who was destined for school teaching, but through a chance remark of a friend, was directed to the invention of the cotton gin. What Winchester lacked in mechanical ability was more than compensated by his ability as a salesman, his grasp of financial matters, and his choice of subordinates who could advise him on technical matters.

An important feature of this book is the manner in which the author discusses policy questions which beset the Winchester management. In a growing country business conditions were in continuous flux. An unending task confronted managers in adjusting to new conditions. With Winchester, various questions were always to the fore: How to meet competition, whether to stick to traditional lines of production or to branch into others, and in such

case what others should be added to sustain profitable levels in the whole undertaking. Also, there were employment policy questions such as whether to use a contract system among employees or the standard daily wage. Should the company manufacture hardware which had little or no connection with its main lines? How should goods be sold—by direct sale to retailers, through jobbers, or through a chain store system, as was once considered?

In the period shortly after the Civil War the company encountered a new class of problems. This was the era of the beginning of combinations, trusts, trade agreements and, of course, laws against these practices. The management had to decide what course to take. It did engage in some of these practices. Problems existed in other fields, as with government contracts, and with policies for developing domestic and foreign trade. As yet, modern advertising was still in the embryonic stage, but more or less crude methods existed to call attention to the virtues of a company's products. It maintained a group of field representatives such as salesmen, "missionaries," and shooters. The duty of "missionaries" was to distribute posters and hangers to display in shops and windows, along with envelopes and order blanks. The shooters played the dramatic rôle—they were the experts who demonstrated the virtues of Winchester guns. The prestige of the company was further increased by testimonials of well-known riflemen. Finally, towards the end of the company's career the critical question was how to keep the organization afloat in face of losses.

These are merely a sample of the many questions to which the owners had to find answers. In short, this book is much more than a narrative of the company's growth. In a measure, it is a useful case study on business management as applied to this organization. The book is supplied with an extensive bibliography, and illustrated throughout with types of guns and various accessories used by the company.

I. Lippincott

Washington University

Economic Development of the United States. By John R. Craf. (New York: McGraw-Hill. 1952. Pp. vi, 598. $5.00.)

This volume deals with the economic development of the United States, presumably at the level of the beginning college student. In a field as rich in "facts" as that of the historical growth of the highly complex American economic society, a textbook author assumes the task of identifying those elements of the story which, when related in coherent and meaningful fashion, will constitute not only a solid foundation for the student's understanding of the nature of economic change but also for a more abstract analysis of the whole (theory), and for more detailed examinations of the rôle of the major institutional components. The task requires a purposeful organization which supplies the criteria for selecting the data to be discussed, and which leads to and supports reasonably explicit conclusions. Detail enriches or confuses, depending upon the skill with which the relevance of individual facts to a larger whole is indicated.

In this volume there are few hints to the student as to what is significant, or why, and numerous occasions for mental indigestion. We are told that "The general theme of the book is that the United States began as an agricultural nation and remained within that category for more than two hundred and fifty years. . . . In time settlers were followed by organized governments, transportation agencies, merchants, bankers and farmers. These became the nucleus of a highly developed society. As urban centers arose and as the United States matured, the threads of industrialization brought major changes to the pattern of American economic life. Slowly at first, and then at an accelerated pace, transportation and industry became essential in the economic structure." What is said about the agricultural nature of American society suggests a possibly fruitful interpretative approach to the subject-matter. Unfortunately, one looks in vain for either outright statement or indirect suggestion which develops this point of view. If the rest of the quotation can be said to suggest a theme, nowhere in the volume is it developed as such.

Few professors have escaped the experience of being approached by one of their students with the question: "How much of the detail in the text will we be held responsible for?" Such questions are usually and justifiably shrugged off with a stock answer. The query may, however, also be a source of embarrassment since it may legitimately arise from the failure of the instructor, or the textbook employed to perform the essential teaching task of supplying the organization, and suggesting interpretations and value guide lines, which help the student in developing his own capacity to judge as to the significance of data. Without such a set of interpretative tools, students (and the instructor) are lost in a wilderness of assorted, unclassified, unappraised "facts." The instructor using this volume will have little assistance in helping his students find their way out of the dense forest into which they have been led.

CLARENCE H. DANHOF

Washington, D.C.

A Short History of the International Economy, 1850-1950. By WILLIAM ASHWORTH. (New York and London: Longmans, Green. 1952. Pp. 256. $3.25.)

A well-written textbook which does more than rehash conventional materials deserves more than perfunctory notice. Professor Ashworth, a lecturer in economic history at the London School, has compressed into 250 pages the substance of a course in the history of international economic relations since 1850. The work aims to meet the needs of university students, but the author hopes it will "be of some value to the general reader with a lively interest in the process of historical development and the nature of modern society." Both purposes have been well served.

International, Ashworth observes, means "common to many nations" as well as "between nations." Although he deals with international phenomena in both senses, the emphasis centers on the processes of change and growth common to two or more countries. Breaking away from "certain current

fashions in the writing of economic history," he eschews "detailed consecutive treatment of the internal economic history of particular countries."

The story begins in the mid-nineteenth century, when "there were clear signs of change in progress and greater change impending." This seems strained; for "signs of change in progress" must have been as readily observable in 1846, or 1861, as in 1850. Though it is difficult to establish landmarks in economic history, probably the beginning of England's half-century under free trade qualifies as a convenient point of departure. Certainly, it added significance to international intercourse.

But the expansion of trade and the migration of British capital were not the only channels through which an international economy emerged. Prior to 1914, the spread of mechanization, resulting in "a massive expansion of primary production," reached manufacturing, mining, transport, and even agriculture universally. "Yet, though mechanical techniques became dominant in the economic activity of the world as a whole, they did not spread to every occupation or to every place." In eastern Europe traditional methods of farming, "too often a euphemism for semi-starvation," persisted; and colonial governments in the Far East restrained the development of industries which competed with imports from the home country. We lack extensive cross-sectional data, or long time-series, for more than a limited number of countries; but Ashworth presents a trenchant verbal analysis of the uneven flow of technology and machinery into the national economies of the East and the West.

More or less common experiences with the factory system, scientific management, business organization, and concentration accompanied the mechanization of production. While there were "numerous exceptions to the increase of business concentration," they were "too few to diminish the significance of the general trend." The labor movement, too, took on many international characteristics; although, "when tested by the First World War, patriotism proved far stronger than industrial solidarity."

Looking at "Government and Economic Life," Ashworth finds that no European country ever "came so near to laissez-faire as Britain"; but American philosophy, except for the high tariff, "carried laissez-faire further than it ever went anywhere else." Nevertheless, government regulation, economic planning, and public ownership widened their beachheads in every national economy. The differences were differences of timing, methods of control, and areas of intervention.

The "emergence of an international economy" resulted from the diffusion of technology and tools and the mass migration of people across national boundaries. Surely, there were earlier signs of its emergence—even in the sixteenth century—but the increasing interdependence of nations sharpened the contrasts between the nineteenth and earlier centuries. "Hardly any part of the world was permitted to remain economically self-contained, and the course of economic activity in any region tended in consequence to become more dependent on events and decisions in other places."

The outbreak of war showed "just how delicately balanced was the international economic system"; and the developments of the ensuing thirty-five

years repeatedly halted the prewar tendencies for the international economy to expand. Fresh attempts to enlarge the area of international division of labor often ended with agreements to curtail production, limit migration, and insulate national economies from the international. In contrast with the generally beneficent changes underway at the middle of the nineteenth century, the "signs of change in progress" in 1950 seemed to portend the continued disruption, contraction, and fragmentation of the international economic order.

This sane and carefully constructed account of a century of economic development yields little by way of conclusion or recommendation for reform. Ashworth has fulfilled his promise to show how "the bright promise bestowed by a century of material achievement was clouded by doubts whether the achievement might not be turned to base uses or utterly destroyed." The evidence strengthens the conviction that "the creation of an international economy" remains, as it was in prewar years, "the necessary accompaniment of the rapid development of the world's wealth, a process . . . almost universally regarded as beneficial." But when merely economic remedies for economic problems become unpalatable or seem impractical to those wielding political power, the counsels of an economic historian lose their charm.

ROBERT S. SMITH

Duke University

Soviet Economic Institutions—The Social Structure of Production Units. By ALEXANDER VUCINICH. (Stanford: Stanford University Press. 1952. Pp. x, 150. $1.75.)

Two aspects of the social organization of production units—power relations and group differentiation—are the main foci of investigation in this little book. In the study of power, defined as decision-making, the book examines the rôles of various groups viewed first in terms of their functions (managerial, control and social mobilization) and secondly in terms of their organizational form (government, party, trade union, "voluntary" organizations.) The study of group differentiation deals primarily with social stratification and mobility. Both problems are investigated successively in each of the five production units: the factory, collective farm, state farm, machine and tractor station and industrial cooperative.

Each production unit is treated separately, and the author leaves to the reader the task of generalizing from the material presented in each case. This, coupled with the numerous qualifications which are inevitable and commendable in the study of institutions so complex and so full of contradictions, makes it difficult to pick out the main theses. The following two points, however, are among the most prominent: (a) Power is lodged formally in the manager of the factory and the general meeting of the collective farm, but the incursions made upon this power by government and party organizations have diluted it to the extent that the manager is reduced to a mere "bureaucrat serving as a direct link between an economic unit and the government bodies," and " 'kolkhoz democracy' . . . has shrunk to insignificance before the continually expanding network of channels devised to subordinate the

countryside to an indisputable authority of central government and Party quarters." (b) Within production units planned increase of social stratification has resulted in the "consolidation of the intelligentsia as a well-delineated status group," greater status differentiation among workers and peasants, and reduced mobility within and between status groups. There is nothing new in these conclusions, but it is in the qualifications and amplifications that the author makes some interesting contributions; for example, the "informal organization" by means of which factory management reacts to government and party incursions upon its power.

The author is severely handicapped by lack of space. Fifty-one pages are devoted to the factory, 42 to the collective farm, and 39 to the other three organizations. A substantial amount of this space is devoted to a highly condensed presentation of historical and descriptive background information, which leaves little room for a full development of the main arguments. Consequently, the implications of some of the more interesting observations are not explored. For example, a remuneration system in which the income of the more productive collective farmers is earned at the expense of the income of the less productive ones is suggestive of many intragroup tensions which are not explored even in theory; or a further pursuit of the theme of informal organization might have led to some fruitful inferences about the goal orientations of management. A second effect of the shortage of space is the absence of documentation and illustration of many interesting ideas, such as the statement that the glavk tacitly cooperates with the factory in many of its illegal actions, or that the class or group identification of a Soviet citizen is frequently determined in his youth. However, the documentation of factual statements is good and the author is careful with facts. The major exception, worth noting because it is important to the argument, is the labor draft status of women; contrary to the author's statement, women were included in the labor draft during the war and apparently still are.

The specific contribution of the book is that it culls out of the primary and secondary sources a number of sociologically relevant factors, classifies them in a convenient way, and brings them together in one place. Since the broad picture of the social relations in Soviet economic institutions had already been sketched out, the usefulness of the book would have been enhanced if the same space had been devoted to a more intensive study of fewer problems or fewer economic institutions.

Joseph S. Berliner

Russian Research Center, Harvard University

Formulation and Economic Appraisal of Development Projects. Book I: *Major Course Lectures;* Book II: *Lectures on Special Problems.* Lectures at the Asian Centre on Agricultural and Allied Projects sponsored by the government of Pakistan and UN Technical Assistance Administration. (Lahore: Supt. Govt. Printing. 1951. Pp. xiv, 473; vii, 399. $3.00; $2.50.)

In late 1950 the government of Pakistan, jointly with the Food and Agriculture Organization, the International Bank and the United Nations, in-

cluding the Economic Commission for Asia and the Far East, sponsored a ten-weeks conference and workshop on economic development problems. The lectures now appear in print in virtually the form in which they were delivered. Consequently they display both the merits and weaknesses of oral presentation reduced to print; a freshness and informality of approach combined with an occasional tendency to be long-winded or not entirely clear. All the same the lectures make good reading and the lecturers deserve high praise for the success with which they carried off what must have been a difficult assignment.

Book I contains the "six major courses" of lectures as follows: "Development Projects as Part of National Development Programmes," by Hans W. Singer (U.N.); "Appraising Costs and Benefits of Development Projects," by J. Thomsen Lund (International Bank); "Methods of Economic Forecasting," by Mordecai Ezekiel (FAO); "Organization and Administration," by Marion Clawson (U. S. Dept. of Interior); "Financial Aspects of Economic Development" by Egbert De Vries (International Bank); and "Preparing the Final Prospectus and Proposal for a Development Project," by Mordecai Ezekiel and Kemal Suleyman Vaner (U. N.). Book II contains lectures on "Special Problems of Economic Development." Some of these are indeed special problems, *e.g.*, "Planning the Development of Asian Fishing Industries," or "Farm Management Aspects of Agricultural Developmental Projects," but a few are of more general interest, *e.g.*, "Health Problems of Development Projects." Few economists interested in economic development problems will not be benefited by reading Book II. But many will probably feel with the reviewer that most of the presentations in Book II are too technical to be assessed by an economist.

Of the lectures in Book I the reviewer believes that those by Singer and De Vries will be found of greatest interest to readers of this *Review*. Though a full discussion of their presentations cannot be given here, a few of the points that they particularly stress should be mentioned. Unfortunately this review will have to omit comment on the other monographs.

Singer lays particular emphasis on what he calls the principle of accumulation and the principle of interrelation. "Economic Development is a cumulative process. . . . The secret of development planning is to set in motion forces of cumulation" (p. 2). As the subsequent discussion shows, Singer means by this that there is no linear cause and effect relation between, for example, poverty and capital formation, basic industries and development, agricultural development and industrial development, demand for basic services and supply of basic services, etc. If the reviewer understands him correctly, Singer here is emphasizing that development or improvement in any one sector fosters and makes easier development in other sectors: in development and growth everything depends on everything else in an organic not a mechanical manner. This is the principle of accumulation or, perhaps better, the cumulative principle.

The principle of interrelation in developmental programing concerns the necessity of understanding such complexities as the relation between social-

overhead service projects and directly productive projects, between public and private projects, between dispersed development and concentrated development, between capital-extensive and capital-intensive projects, between consumption gains and further investment, etc. Any successful planned program of development will have to take hard decisions on all these points, in Singer's view, and it is well to recognize them from the start while avoiding making irrevocable commitments wholly on the one side or the other whenever possible.

A good part of Singer's lectures consists in spelling out what these two closely related principles mean in concrete terms. It is a highly enlightening discussion.

De Vries' lectures to some extent cover ground already made familiar by other U. N. publications. The reviewer, however, found particularly fresh and revealing his remarks on "Savings and Investment in S.E. Asia," "Seasonal Factors in Agricultural Financing" and "Summary of Development Problems of S.E. Asia." In all three sections De Vries' intimate and at times deeply sociological knowledge of S.E. Asia comes through strongly to give the reader a fuller understanding of the problems than he is ever likely to get from neat equations and tidy syllogisms.

This review has had to omit much that the reviewer would have liked to commend and comment on in the lectures of the other contributors. He hopes, however, that he has conveyed his conviction that these two volumes are generally excellent, and that he profited from them with real pleasure.

NORMAN S. BUCHANAN

University of California, Berkeley

Costa Rica: A Study in Economic Development. By STACY MAY, JUST FAALAND, ALBERT R. KOCH, HOWARD L. PARSONS and CLARENCE SENIOR. (New York: Twentieth Century Fund. Pp. xiv, 374. $3.00.)

The Twentieth Century Fund and the authors of this volume have put all students of problems of underdeveloped countries deeply in debt by this notable addition to a field of economic literature, so far more distinguished by good will and enthusiasm than by penetrating analysis.

The purpose of the book is twofold: first, to describe the economy of Costa Rica and its main development potentialities; and second, to discover the immediate contributions which technical assistance under Point Four—but presumably also technical assistance from international agencies—could make in accelerating economic development. Costa Rica was selected for this study presumably for two reasons: first, being a very small country, the major development priorities stand out more clearly and the number of important projects is more limited; and second, in a number of respects, Costa Rica presents rather more favorable opportunities for development and technical assistance than other underdeveloped countries.

The arrangement of the book is straightforward. The first two chapters (by Stacy May of the International Basic Economy Corporation) describe Point Four and the Costa Rican economy generally, and in relation to each other. Two chapters (by H. L. Parsons on loan from the U.S. Department of

Agriculture) deal with the agricultural sector. Three chapters (by Stacy May) deal with industries, utilities and commerce. Health and welfare are considered (by Clarence Senior of the Bureau of Applied Social Research of Columbia University). Foreign trade and exchange problems are discussed (by Just Faaland on loan from OEEC). The general analysis of the Costa Rican economy by sectors is concluded by two chapters on finance (by A. R. Koch on loan from the Federal Reserve Board). A concluding chapter draws together the results of the second analysis and presents conclusions and recommendations.

Contrary to many group reports of this kind, the report forms a consistent whole, and the staff of the Twentieth Century Fund, as well as the authors, are greatly to be commended for welding the individual contributions together. The reader of this volume has all the time the feeling that he is consistently, gently but firmly, directed towards the final conclusions. This ease of reading is assisted by the fact that the small size of the country makes a transition from general principles to specific projects rather easier than it is in larger countries. Assisted by the miniature scale of the problem, the analysis strikes a happy medium between a skeleton model and an economic almanac—that Scylla and Charybdis of reports of missions to underdeveloped countries.

One inevitable drawback of the book is that it was written under the immediate impression of the outbreak of hostilities in Korea. As a result, the authors seem much more concerned about the possibility of supply difficulties for Costa Rica than present hindsight would indicate.

Subject to this general acknowledgement of the high standard of the book, the following major criticisms may be made:

1. The study operates with a national income estimate of $180 per capita. This estimate is considerably in excess of the United Nations estimate ($125 per capita for 1949).[1] The difference between the two estimates may be attributed to the fact that the Twentieth Century Fund study has used official exchange rates. If the free market exchange rate had been used, a figure very close to the UN estimate would have been obtained. One wonders to what extent the optimism of this study on development prospects is related to what this reviewer believes to be an overestimate of the national income.

2. The study seems based throughout on the view that foreign assistance requirements are determined by the direct import requirements for equipment and material for development projects. This reviewer believes that this is a fallacy and that there is no necessary logical connection between the two.

3. The proposal to reduce food prices—*e.g.*, sugar prices—in order to release purchasing power for other products and create domestic markets, neglects the possibility that in the special conditions of an underdeveloped country the income elasticity of demand for food may be very high.

4. The stay of the members of the group in Costa Rica was very short (only six weeks for the group as a whole), and it is notable that frequently even on elementary and important matters, reliance is placed on random

[1] *National Income and Per Capita Incomes in Seventy Countries, 1949*. Statistical Office of the United Nations, October 1950.

interviews, the ideas of farmers, guesses, etc. (on page 130, even on fishermen's tales!). While fully recognizing the lack of information in underdeveloped countries, perhaps with a longer stay the group might have been able to undertake studies of its own on some of the problems involved.

5. From data given on page 114, it would appear that some $500,000 or so a year in foreign exchange is lost to the country through the smuggling out of gold. In a country of 800,000 people, this would seem a rather big problem and it is surprising that no reference and no recommendation is made to the possibility of utilizing this potential source of finance for economic development.

6. The report seems to operate too much with comparisons with the United States and ratios derived from U.S. data. A glaring example of this is to be found on page 134, where it is concluded that in Costa Rica "there seems to be even more opportunity in agriculture than in industry for productive improvement." This conclusion is derived from the fact that the ratio of per capita output in manufacturing to that of agriculture in Costa Rica is as high as 3:1, while in the United States it is only a little more than 2:1. This seems a very slender foundation on which to base such an important conclusion.

7. In its proposal to abolish "inefficient" small-scale retailing, the report seems to fail to take account of the fact that retailing is often an outlet for semi-unemployed producers and artisans. The report states on page 186: "Since many of the small retail establishments are at the same time producers of handicraft products, the growth of larger retail units might facilitate a larger scale of manufacturing, with its possible economies." To the reviewer, the link of retail trade and handicrafts seems to be a reason to be careful about increasing the scale of the unit in trade, rather than otherwise. It seems just as likely that handicraft production may be destroyed without being replaced by larger-scale manufacturing.

8. The report concludes from the data on changes in money supply 1940-49 that some savings must have taken place. This conclusion, however, seems only reached by neglecting the increase of population during the decade. On a per capita basis, there would appear to have been no increase in real money supply at all.

9. The report does not entirely escape the fallacy of scale. Thus, it is stated (p. 267) that "Costa Rica has up to now obtained only a small volume of financial aid." When the data are expressed on a per capita basis, however, it would appear that Costa Rica has received very appreciable financial aid from abroad.

10. The chapter on "Banking, Finance and Foreign Exchange" appears to be written in much more general and theoretical terms than the rest of the report, which goes directly to actual Costa Rican problems. This reviewer would moreover question the theory which permeates this chapter and is also embodied in the conclusions, that foreign investment may contribute to inflation. This seems a confusion of thought. A given degree of investment will be less inflationary the more it is financed from abroad. It is only when invest-

ment from abroad raises total investment by more than the influx of foreign capital that foreign investment can be said to be inflationary, and then only in comparison with the lower volume of investment which would have obtained in the absence of foreign investment.

11. The total cost and expected benefits of the projects suggested in the conclusions and recommendations are not worked out. In the absence of such figures, it is impossible to form an opinion whether the program suggested is well related to the resources likely to be available for economic development.

12. The report also raises some interesting problems of "welfare economics." On the one hand, the idyllic nature and charm of life on the Central Plateau of Costa Rica, with its eternal spring, are described; on the other hand, it is suggested that production should be shifted to other regions, particularly the Atlantic coastal area abandoned by the United Fruit Company because of the spread of the Panama disease. This seems to amount to a recommendation to sacrifice some of the "non-pecuniary advantages" of life on the Central Plateau for an increase in output.

Since this review has made a number of criticisms, it may be well to repeat that this is one of the best publications on economic development problems which has yet appeared. To offset the above-mentioned criticisms, this reviewer could give an equally long or longer list of intriguing points or of interesting analysis.

H. W. SINGER[2]

New York, N.Y.

Statistics and Econometrics

Econometrics. By J. TINBERGEN. Translated from the Dutch by H. RIJKEN VAN OLST. (New York: Blakiston. 1951. Pp. xxi, 258. $4.50.)

Econometrics is an important method of economic research. Yet, because many economists have not had adequate training in econometrics they have not been competent to judge its results. This is partly attributable to the absence of a competent introduction to the basic elements of econometrics. Tinbergen's book is designed to fill this need as well as to acquaint the economist with some of the more important results of econometric research. Needless to say, Tinbergen is eminently qualified to undertake this task.

The book is divided into three parts: the matematical formulation of problems, the statistical treatment of problems, and the contributions of econometric research. Discussion of the mathematical formulation is centered upon the conception of a rigorous analytical model for a given economic problem. Economic theory is presented as a set of relations describing the logical structure of the economic mechanism. The main points of this section are Tinbergen's discussion of the function of mathematical economics, the

[2] The author is a member of the United Nations Secretariat, but the views expressed in this review are his private opinions and do not necessarily reflect the views of the United Nations Organization.

formalization of economic relationships, the nature and form of supply functions, some problems of macro-theory, and the stability of equilibrium. To this reviewer this section does not measure up to standards of clarity, conciseness and systematic coverage of argument we have come to expect from Tinbergen. For example, the description of the function of mathematical economics (p. 13) is insufficient for the reader interested in the power of this tool. And in the discussion of simple aggregation in macro-economic investigations (pp. 34-35) the dimension and meaning of the commodity in the macro-function derived from the micro-demand functions are not clear. However, it should be noted that the same section contains a series of valuable observations. Among them we find (pp. 15-16) Tinbergen's discussion of the relationship between statics and dynamics, in which he emphasizes the relative obscurity of static models. He points out that a sufficient specification of economic mechanisms requires some description of dynamic properties and that often the logical character of the relations in a static model are not clear unless the dynamic background of the theory has been specified. He notes that relevant differences between economc theories may be obscured by a strict equilibrium analysis.

Tinbergen's discussion about supply functions is highly suggestive. He distinguishes between two basic types of supply functions: quantity-setting and price-setting functions which reflect important differences in institutional arrangements. Two different logical interpretations can be attached to these two types of supply functions. They may be considered as two different explicit solutions of the same implicit supply function. Or we may consider the quantity-setting function as a definition of the boundary of the attainable set of values of the variables and the price-setting function as a description of the quantity-price behavior within the attainable set, determined by a given institutional context. In addition he indicates that supply-analysis should take account of the differences presented by an order-reaction and an inventory-reaction case. This last suggestion seems particularly relevant for macro-theory.

In his discussion of statistical problems Tinbergen has restricted himself to a short general description of a few basic elements. A short description of time series, their decomposition by various methods, and of simple and multiple correlation dominates this section. This part may be essentially conceived of as a reference list of statistical concepts basic for the econometric approach. Some of the newer developments are included, *e.g.*, the simultaneous equation approach. Nothing is mentioned about the important identification problem.

The most interesting part of the book is in the chapters on results and policy evaluations. Tinbergen's summary of results presents useful references to econometric studies on demand functions, cost functions, production-supply functions and various types of market elasticities. It also includes discussion of a relatively complex international trade model, applied to the situation in the Netherlands in recent years. The reader will find a careful study of this section highly suggestive and most rewarding.

The model is based on three behavior functions: (i) demand function for

the national product by the home market; (ii) demand function for the national product by the world market; and (iii) supply function of the national product in the form of a price-setting function. Here Tinbergen has once again demonstrated his renowned ability to construct a manageable model. He clearly reveals the devices needed to assure manageability of a model whose structure is more complex than most international balance of payments theories. These devices include linearizing the relations by selecting increments relative to a base period as endogenous variables, and choosing a suitable scale for some of the price and product variables. These steps are essential to scientific analysis. With the help of methods of statistical inference Tinbergen derives estimates as to the quantitative structure of his model. Such estimates are necessarily subject to some degree of uncertainty. This uncertainty would be reflected in any conclusions drawn from and policy evaluations based on the estimated quantitative structure. To limit this uncertainty Tinbergen considered five quantitative structures differing from his best estimate but still all of them lying within some feasible range. One of the interesting results is his estimate for the price-elasticity of exports and imports, an estimate which has been derived from an analytical framework larger than that usually encountered in such studies. In all six cases their sum is never below 2.3. From the model Tinbergen extracted some relevant information for an evaluation of the balance-of-payments problems. He found that an isolated price or wage policy is a highly inefficient instrument for achieving an equilibrium in international payments. Devaluation fares no better as an isolated instrument. His results indicate that the combination of devaluation and deflationary fiscal policy would be efficient and that the order of magnitudes of the required policy would be perfectly realistic. May the disciples of Balogh be converted!

Some quibbles and questions concerning this last part do not detract from its over-all excellence. Nonetheless, the reviewer wishes to express himself strongly on the character of Tinbergen's exposition. The book is designed for the general economist—not for fellow econometricians—but the general economist may well experience some difficulties in following the argument beginning on page 165. Tinbergen leaps over some of the steps he employed to combine relations. Such gaps and leaps will frustrate the general economist trying to follow the argument. A more explicit discussion would have been preferable on pedagogical grounds. Concerning the nature of the relations certain questions come to mind. Should the average propensity to import be treated as a kind of technical coefficient? Is there no evidence that this quantity is an endogenous variable, dependent on price and cost structure even for smaller countries? Does there not exist some evidence to the effect that the supply of products for exports depends (partially) on the level of home demand for the national product? Casual experience in the postwar period suggests this last hypothesis.

One of the last sections in the book contains an excellent discussion on the limitations of verbal treatment of problems in economic analysis. Tinbergen's comment on this point may be usefully considered by economists. The book as a whole enables the interested reader to obtain a useful conception of the

general nature of econometric research. But it seems doubtful whether he will derive any workable knowledge of econometric research methods which he did not have before. Such a textbook on econometrics has still to be written.

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Economic Systems; Planning and Reform; Cooperation

The Dilemma of Democratic Socialism: Eduard Bernstein's Challenge to Marx. By PETER GAY. (New York: Columbia University Press. 1952. Pp. xvii, 334. $4.50.)

This intellectual and political biography of Eduard Bernstein, the leader of German "revisionist" socialism, is a competent and useful work. Unlike much current American literature dealing with one or another aspect of the socialist movement, its purpose is to understand the subject under investigation, not merely to grind a fashionable ideological axe.

The book is divided into three parts. The first deals with Bernstein's conversion to socialism in the 1870's, his exile from Germany by Bismarck's antisocialist laws and his years in Zurich and London, and his defection from Marxism after Engels' death in 1895. The second part discusses in detail the "revisionist" doctrine which Bernstein expounded and defended in the years just before and after his return to Germany in 1901. The third part resumes the story of Bernstein's career and its relation to the fortunes of German Social Democracy from 1901 until his death six weeks before Hitler came to power. In addition to published sources, Gay makes good use of the Bernstein Archives located in the International Institute for Social History at Amsterdam; and in finding his way through the intricacies of Marxian theory and German history, he has evidently profited from the guidance of Professor Franz Neumann of Columbia, under whose direction the study was undertaken. The style is clear and straightforward.

The material which Gay has assembled and digested allows us for the first time to see Bernstein in proper perspective and to judge his achievement fairly. He was a Fabian long before he ever went to England and indeed long before there were any Fabians, and his conversion to Marxism seems to have been more a matter of party loyalty and devotion to Engels than of genuine conviction. Seen in this light, his abandonment of Marxism after Engels' death seems to be not only natural but inevitable: he was merely giving expression to his own earlier and more deeply held convictions. That this took the form of "revising" rather than repudiating Marx was also inevitable under the circumstances: subjectively, Bernstein wanted to remain faithful to Engels, but much more important (this point seems to have escaped Gay), it was impossible to get anywhere in the German socialist movement in the late '90s unless one professed to be some sort of a Marxist. Bernstein was very far from being the *founder* of revisionism; it was already a strong tendency in the movement before he began to write about it, and by the early years of

the new century most of the German Social Democratic Party were practical if not theoretical revisionists. Bernstein's rôle was merely to formulate what a lot of people thought or felt, and his fame and popularity were in large part due to the fact that he provided the kind of theoretical justification and respectability they needed (also of course to the resounding applause of the bourgeois press—again a point overlooked by Gay). He was neither an original nor a powerful thinker, and his supporters and followers were an undistinguished and heterogeneous lot who created no lasting school of thought. After the Great Debate over revisionism had subsided (before 1910), Bernstein had nothing new to offer—his opposition to the war was a highly personal attitude, largely influenced by his Anglophilia—and during the Weimar period he had little influence and led an increasingly isolated existence.

The picture of Bernstein which emerges from Gay's careful review of his career is thus one of almost total failure. His theories enjoyed a momentary fame, not because of any particular merit but because of the special historical context in which they were first published. The practical politicians and trade union bosses who eventually came into control of the German socialist movement agreed with Bernstein—to the extent that they bothered to think about theoretical questions at all—but had no use for him in their inner counsels. And the content of Bernstein's message—the gradual conversion of the German middle classes to socialism, permitting a peaceful and legal transition to the new society—has been brutally belied by the whole course of German history during the twentieth century.

Gay, whose fondness for Bernstein is both obvious and understandable, tries hard to reach a more favorable verdict on Bernstein's career (especially in the last chapter), but the result only emphasizes the hopelessness of the effort. The truth is that, apart from (doubtless justified) encomiums to Bernstein's moral character, Gay is forced to recognize explicitly the meagerness of his achievement. "It must be said . . . that his doctrine made only a negligible *theoretical* contribution to Socialist thought" (p. 296). "The contribution of Revisionism to Socialist tactics was equally problematic" (p 297). ". . . the reformists gained power in the party quite independently of the Revisionist theorists" (p. 299). "It is certainly true that Bernstein was unfortunate in his supporters—not one of them understood his democratic Socialism sufficiently to develop it further" (p. 300).

It would, of course, be quite wrong to conclude that it was not worth while to write Bernstein's biography. On the contrary, he is a famous and controversial character who badly needs to be seen in proper proportions and perspective. It is Gay's merit that, despite his partiality for his subject, he gives us what we need for the purpose. At the same time, however, it must be said that he could have added greatly to the significance of his book if he had frankly faced the fact of Bernstein's failure and had inquired seriously into its implications. As it is, the book is good as an intellectual and political biography of Bernstein, but it never comes to grips with the crucially important problems implicit in its title.

Gay's handling of the economic theories in dispute between Marxists and

revisionists is on the whole adequate but uninspired. (This may sound like damning with faint praise; but in the present intellectual atmosphere in this country, it should be taken as—and is intended as—a compliment.) There is, however, one important exception: Gay's treatment of the capitalist breakdown issue seems to me to be deficient both as regards its meaning and its wider implications. At the very center of Bernstein's attack on Marxism is the alleged theory of capitalist breakdown which Bernstein simply takes for granted as being an assential part of Marx's doctrine. And yet the truth is that Marx had no such theory, as Gay himself in effect admits when he says that "Marx never presented a coherent picture of just how capitalism would come to an end" (p. 177). In spite of this implicit admission, Gay argues as though Bernstein had been quite justified in attributing a breakdown theory to Marx. Gay's reasoning seems to be that since Marx (undeniably) believed in the existence of *tendencies* to capitalist breakdown, it follows that he must be assumed to have believed in the eventual inevitability of capitalist breakdown. This is on a par with the well-known criticism of orthodox economists which maintains that because they assert the existence of tendencies to long-run equilibrium, they must also believe in the reality of long-run equilibrium. It is a time-honored method of criticism, and it leads to easy verbal victories —but also to quite irrelevant conclusions. Gay's failure to see this vitiates his whole discussion of the breakdown controversy (pp. 176-90). This is too bad, since the problems involved in this controversy are among the most difficult and important in the whole field of political economy and in a very real sense dominated the debates between the revisionists and the orthodox Marxists.

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Comparative Economic Systems. By THEO SURÁNYI-UNGER. (New York: McGraw-Hill. 1952. Pp. x, 628. $5.50.)

This book is ambitious in scope, overwhelming in erudition, and challenging in thesis. The first hundred pages, constituting Part One, state the theme: the categories conventionally used in classifying contemporary economic systems are inaccurate and provoke discord among nations by their mutual exclusiveness. Such supposedly extreme systems as those represented today by the United States and the Soviet Union are in fact constantly in flux and are both tending towards some mean position between them, such as that occupied by Great Britain. In short, according to Professor Surányi-Unger, the outmoded static concept of rigid differences in kind must give way to the more fluid concept of ever-changing differences of degree.

Part Two (about twice the length of Part One) analyzes the *social* elements which today at once differentiate and fail to differentiate the "American sphere" from the "Soviet sphere." This section relies heavily on history, philosophy, anthropology, and allied disciplines. The point stressed here as elsewhere is the fundamental and growing *rapprochement* between "West" and (Soviet) "East."

The third part, and second half, of the volume discusses the *economic*

element in contemporary systems. In so far as systems may be identified by their economic characteristics, the chief criterion is the relative amounts of collectivization and private enterprise. The reader will find in these latter chapters most of the material customary in textbooks in this field, but only by way of illustrating the author's theses regarding the distinctions, and lack thereof, between the Soviet and non-Soviet worlds. The theme of dynamic transmutation of economic systems is stressed for a third time. The author repeats here the argument of his earlier volume,[1] including his questionable idea that "collectivization" may be treated by the indifference curve technique as a "good" opposed to "reprivatization." Indeed, this volume as a whole may be viewed as a restatement and expansion of the earlier volume, recapitulating it verbatim in places. (*Cf.* p. 293 of the new with p. 15 of the earlier volume.)

The book suffers from confusion as to aim. No work can successfully be simultaneously an original treatise and a beginner's guidebook. To mention just one difficulty in this connection, the language of this book is not infrequently too esoteric for normal readability and is certainly beyond the college student. Not only should a textbook not double as a treatise, but no scholarly publication should be a tract, and this book at times harangues too much.

The most constructive aspect of the book is its experiment in polysynthesis. There can be no doubt that a "general" economics which can deal with new twentieth-century forms of economy as well as with traditional laissez-faire capitalism must combine the mathematical formalism of modern analytical theory with knowledge from the general corpus of social science.

Unfortunately, the author's vast coverage is at the cost of some error. For example, he misconceives the nature of both Platonic and medieval philosophy (p. 134), misappraises the kolkhozi (pp. 30 and 394-96), and oversimplifies and distorts Marx (p. 136). His gravest deficiency is that he founds his system upon an extreme nominalism which he cannot sustain and which leads him into profound pitfalls. His denial of the existence of distinctive species or categories implies the impossibility of man's power to generalize—a power upon which all human knowledge rests. It also belies our common-sense realization that fascism, say, is in truth a distinctive system. Its practical consequences are most dangerous, for it counsels a do-nothing policy in the face of evil on the grounds that the evil (1) is not there (differences do not exist) and (2) will go away (differences of degree dynamically disappear). Moreover, despite his denial, he finds himself forced to erect classificatory systems of his own based on questionable distinctions, such as materialistic and nonmaterialistic, primary and secondary, distributive and equalitarian economies.

A system, whatever its merits, is not likely to convince if it even merely superficially seems to be obscure and contradictory.

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[1] *Private Enterprise and Governmental Planning: An Integration* (New York, 1950), reviewed by Carl Landauer, *Am. Econ. Rev.*, Sept. 1951, XLI, 696-98 and by A. G. Papandreou, *Econometrica*, Oct. 1952, XX, 698-99.

National Income and Social Accounting

Veränderungen der Einkommensverteilung in England, 1938-1948. By ERWIN GERBER. (Bern: Rösch, Vogt und Co. 1952. Pp. vii, 152. 16 sw. fr.)

A study from abroad of economic change in a country is frequently of interest because distance results in better perspective and detachment from partisan issues or because a comparison with developments in the author's own country enriches our knowledge of comparative economics. The present study has none of these merits.

Dr. Gerber's study on changes in the distribution of personal income in the United Kingdom falls into three parts. In the first chapter, changes between 1938 and 1948 are described and particular attention is paid to factors which have caused an increase in the share of wage income in the total. The second chapter deals with the impact of taxation on the size distribution of disposable income. In the third chapter, changes in real personal income are discussed. The main findings on the extent of the levelling process and on the effects of taxation and of differences in the change of the cost of living, summarized in a concluding chapter, are broadly in agreement with those reached by British students.[1]

The study is organized around some 50 tables drawn from a variety of British publications ranging from the official White Papers on National Income to the Conservative Campaign Guide. The author's use of source material is, however, less critical and imaginative than in the recent journal articles by Barna, Brown, Reddaway, Rhodes, Sears and Wallis (to which Gerber, however, makes no reference).

Gerber's study contains no material that would not be known to students of the British economy, although it will provide the continental reader with a wealth of information on such subjects as the United Kingdom income tax structure (including sample computations of tax returns), the computation of Laspeyre's index or the Organization for European Economic Co-operation recommendations for an investment program for the United Kingdom. A good part of the text consists, indeed, of brief summaries of articles which have appeared in recent years in the London *Economist,* including the well-known series on the Age of Inflation, and of various documents, such as the Labour government's "Statement on Personal Incomes, Costs and Prices" of February 1948.

The author's endeavor to give the study a logical structure by subdividing a 150-page monograph into fifty sections with separate headings is defeated by his wrestling with definitions. Indeed, the struggle begins on page 1, where in a footnote he tries to clear up the confusion arising from the continental use of the terms Great Britain and England to denote the territory of the United Kingdom (but thereafter proceeding to use these three terms indiscriminately). This reviewer wonders whether the problems of exposition would not have been simplified if the author had avoided using such cumbersome definitions as the following one for taxes, at the beginning of Chapter 2,

[1] See, for instance, D. Sears' article in the October 1949 *Bulletin of the Oxford Institute of Statistics.*

taken from Amonn's textbook: "A compulsory payment levied by a government unit from private economic units belonging to it, by virtue of the fact of their belonging to this unit, 'belonging' being defined not in a political or territorial, but in an economic sense, namely as belonging to the economy of the Government unit."

In many cases when Gerber's exposition reaches a point where some broader and provocative analysis could have been attempted, he rules the problem to be "outside the scope of our study." Yet the study is overloaded with material only indirectly related to the subject and used to only a very limited extent in subsequent discussion. Thus, after a lengthy summary of the well-known article by Mary J. Bowman,[2] illustrated by charts in which the original American data are replaced by U.K. income distributions, the author remarks that the preceding pages should have simply shown the potentialities of graphical analysis.

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Business Fluctuations; Prices

The American Economy in 1960. By Gerhard Colm, assisted by Marilyn Young. Planning pamph. no. 81. (Washington: National Planning Assoc. 1952. Pp. ix, 166. $2.00.)

The Sustaining Economic Forces Ahead. Materials prepared for the Joint Committee on the Economic Report by the Committee staff. (Washington: Supt. Docs. 1952. Pp. viii, 70.)

Markets after the Defense Expansion. A report prepared by the staff of the Office of Business Economics, Dept. of Commerce. (Washington: Supt. Docs. 1952. Pp. vi, 90. 55 c.)

These three pamphlets, or monographs, attempt to present a factual and analytical basis for judgment about future levels of economic activity. All are written for the purpose, which is more or less explicitly stated, of allaying the fears of a major recession or depression that have gained dominance among economic analysts. In the words of Colm, there is "some validity and a good deal of error" in such views (p. 69).

Attempts to counter public fears with official reassurances have, in the reviewer's opinion, little merit, because they carry the disturbing implication that they would never have been made if the situation were really secure. In contrast to the outpouring of such "reassuring" speeches and press releases from Washington since the Russian "peace offensive," these reports really present the kind of evidence that permits a rational appraisal of prospects.

All three deny that any specific forecast is intended. The objective is rather to present projections, based on stated assumptions, as guides to government and business in planning for prosperity without inflation in the years ahead. There is substantial unanimity that although the danger of a decline

[2] "A Graphical Analysis of Personal Income Distribution in the United States," this *Review*, September 1945.

exists, the evidence that it will be serious, or even occur at all, is not conclusive. To quote the Commerce Department, 1955 may be expected to "provide a serious test of strength of the economy." But, "we cannot conclude that a business recession will or will not occur, sometime, or any particular time, during the next few years" (p. 3).

The Sustaining Economic Forces Ahead was the earliest of the three in timing of analysis and in date of publication. Originally undertaken when the pessimism of early 1952 was at its height, it represents a rather straightforward attempt to refute prevalent arguments that a serious decline was in the offing. It deals with the entire period from 1952 to 1960 in terms of the investment and other goods that would be needed to maintain minimum living and production standards in a growing, healthy economy.

It may at times strain a little in making its point—for example, in relying on the projection of geometric trend lines—but even discounted for possible exaggeration, the estimates are large enough to call in question the more pessimistic predictions that are currently in circulation. The independence of thought and judgment underlying this work is illustrated by the adoption of population estimates in the higher part of the range of probabilities projected by the Census Bureau, with a challenge to the population "experts," that they "assume rather unrealistically that by 1955 the birth rate will have fallen to the depression low" (p. 12).

The American Economy in 1960 jumps the intervening years to analyze the possibilities of achieving and maintaining full employment after the defense build-up is complete and military spending drops back from a peak of $60 billion to a maintenance rate of $40 billion. The analysis is carried out in terms of a series of models, all of which assume an international situation much like the present and a gross national product of $425 billion in 1951 prices (based on armed forces of 3.5 million and a civilian labor force of 69 million with 4 per cent unemployed).

The method of constructing the models is described in some detail. Each assumes a different way of arriving at the $425 billion total—essentially by assuming that the deflationary gap left by the decline in military expenditures will be filled by compensating changes in one or another of the major sectors of the economy, as represented by consumer, business, international, and government accounts. One by one, all of these partial models are rejected, leading to an "adjusted" model in which each of the sectors makes a more moderate contribution to the projected level of activity.

Colm displays a mastery of the method based on long experience, having been associated with its development from the beginning. Nevertheless, his results illustrate again that model building can produce almost any desired result. A combination model that requires only limited contributions from various sectors is seemingly more realistic than one that requires an extreme contribution from one sector; but the combined result is dependent upon a conjuncture of adjustments that is not necessarily more probable than a single large adjustment. Perhaps the biggest question mark lies in the consumer account. The saving rate is assumed to drop from the recent 8 per cent of disposable income to 5.4 per cent—equivalent to that experienced in the

somewhat abnormal years 1948 and 1950. Colm's statement that this implies the "same situation—high positive saving, and heavy purchases of consumer durables, supported by an increasing level of outstanding consumer credit" (p. 55)—is not entirely reassuring.

Colm puts his models to the best use to illustrate the "policy adjustments" needed to promote high level stability. Among the policies recommended are low prices, low interest rates, low taxes, and borrowing to finance some government investments but none of its current operating expenses. In discussing these policy adjustments, many theoretical points are developed. With reference to the government budget, for example, it is pointed out that "a balanced cash budget on a high level might be inflationary while an attempt to balance the budget on a lower level may be deflationary" (p. 87). There is much of interest to the general economist in both the body and the appendixes of this report.

Markets After the Defense Expansion is specifically aimed at informing "the business community on factors affecting the level of civilian demand after the present defense program has reached its peak" (title page). The bulk of the pamphlet is devoted to a discussion of the current position of the major segments of the gross national product and prospective changes that might be expected in each between 1952 and 1955. At the end, it presents "a high-level market pattern" for 1955—a model, of the Colm variety, based on the assumption that the economy will continue to operate at a high rate—and offers some suggestions for applying this market pattern to the problems of the individual business concern.

It presents the material needed for making a short-term forecast without actually organizing it into an over-all forecast. The techniques used in analyzing the segments vary considerably. To illustrate, the chapter on "Business Intentions to Invest" begins by presenting the results of two surveys of the future capital outlays planned by business concerns; it immediately supplements these with analytical material taking account of historical trends and the magnitude of current investment in relation to capacity and profits; and it then goes on to discuss inventory fluctuations, the availability of financing, and the degree of market satisfaction for other forms of investment, such as farm, institutional, and residential construction. At various points, the resources of other organizations and agencies are drawn upon to round out the Department's own work. Altogether, it is the best analytical summary of factors in the business outlook published to date.

All three of these publications place considerable emphasis on the continuing growth of the economy as a factor limiting the extent and duration of cyclical declines. They also emphasize the extent to which such declines will be mitigated by the automatic stabilizers that have been built into the economy—mainly, flexible taxes, unemployment compensation, old age pensions, farm price supports, and insurance of bank deposits. Recognizing that the quantitative effects of these factors will be limited, however, they fall back on the Employment Act of 1946 as an indication that vigorous action will be taken by the government if any decline should threaten serious unemployment.

The reader whose primary interest is practical and short-run will find

Markets After the Defense Expansion well worth the reading. Those whose interest leans more to theoretical considerations and the longer-run will find *The American Economy in 1960* rewarding. These two contain most, though not all, that is of lasting value in *The Sustaining Economic Forces Ahead.* Together, they disclose the strengths and weaknesses of an economy facing a transition at the peak of an armaments boom and the problems involved in keeping it prosperous in the future.

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Economic Stabilization: Objectives, Rules, and Mechanisms. By WALTER P. EGLE. (Princeton: Princeton Univ. Press, for the Univ. of Cincinnati. 1952. Pp. xii, 264.)

Taking his cue from the late Henry Simons, Professor Egle has set himself the task of impressing all those interested in stabilization policy with the need for binding goals—for firm government commitment to clearly defined floors and ceilings of aggregate economic activity. However, Egle would aim primarily at the stabilization of employment and income and only secondarily, prices. Emphatically rejecting as inadequate reliance on automatic stabilizers, he has also placed the emphasis on the need for discretionary, countercyclical variation in federal expenditures and tax *rates.* If we add his expectation (like that of Simons) that his scheme will ultimately become self-enforcing, we have in a nutshell Egle's central theme.

To the professional economist, the book under review is likely to appear as a restatement of familiar ideas. Such a work is not without merit, provided it offers a thorough examination and scholarly appraisal of issues and alternative proposals. Unfortunately, these traits are lacking in the present book. Egle has been content to raise a lot of old (though still important) questions, but after a few cursory remarks, drop them again without having shed much new light. The book rather resembles a (good) manual for policy-makers and administrators. In fact, it should be made required reading for these groups, as well as for all congressmen and members of the business community at all interested in stabilization problems.

The first two parts of the book are largely an examination of the adequacy of variously proposed built-in stabilizers. In the first part, Egle deals with what he calls "fixed schemes," which are really automatic-stabilizers proper (corporate and personal income taxes, underemployment compensation, etc.). The second part deals with what he calls "flexible schemes," *i.e.*, programs which permit discretionary action circumscribed by a set of legislative rules, as well as various kinds of "tripping" devices for effecting automatic changes in tax rates and expenditures. After brief discussion, the first group is rejected on the well-known grounds that built-in stabilizers can provide only retarding influences on income movements. Except for the "stable money" people, most readers will find little to dispute in this discussion, other than the elliptic nature of much of it, particularly the analytical portions.

There is more to quarrel with in Egle's rejection of the so-called "flexible"

stabilizers. He displays too strong a tendency to dismiss proposals out of hand. Thus in rejecting the method of heavy public works, he raises the old arguments about their lengthy planning, inception, and termination periods. No recognition is given to the important work of Benjamin Higgins,[1] who, after detailed empirical study of the problem, has indicated that a good deal of flexibility can, in fact, be incorporated into public works programs. Since public works programming offers such a potentially important rôle in compensatory fiscal policy, Egle should, if he disagrees with Higgins' ideas, have dealt with them in some detail in a book of this kind.

Automatically varying tax rates are summarily rejected on the vague grounds of "annoyance" to taxpayers, the administrative problems posed to government officials, and the possibility of confusion to businessmen brought about by varying tax schedules. However, as to this last difficulty, it would appear that Egle himself is confusing certainty with constancy of variables in decision functions. As long as rate changes occur in a predictable manner, known beforehand to businessmen (a condition implicit in such proposals), confusion from this source will be at a minimum. On this point alone, it might be argued that automatic variation in tax schedules is better than discretionary variation, since the former is at least predictable. At a more general level, it is to be observed that most of the problems posed by Egle in this connection would apply with equal force in a discretionary scheme of things. The major, and perhaps decisive, exception to this statement lies in the implicit assumption underlying the automatic program that there is something uniform about the way in which the strength of cyclical forces operates, not only from cycle to cycle, but among the different phases of each cycle.

However, as Egle notes, "the purpose of such rules is not to reduce the handling of such controls to sheer routine but to make certain that the control will be used to fight swings" (p. 86). Advocacy of this type of automatic program has stemmed largely from a recognition of the need to do away with the woeful lags inherent in the present legislative scheme of things, and at the same time, from a recognition of the wisdom of presenting such proposals in as palatable a manner as possible to a Congress jealous of its prerogatives in tax and appropriation matters. For one who gives so much attention to such "practical" considerations, Egle is surprisingly harsh on proposals of this type.

Part III, the core of this study, concerns itself with an analysis of the theory and application of the "method of binding targets." "The principal source of weakness in past stabilizing efforts has been the absence of clearly formulated (objectives) and powers on the part of authorities entrusted with cycle control" (p. 97). The means to achieve the end must be adequate, which means strong discretionary powers to vary budgetary outlays and tax rates to the required extent. "The ultimate purpose of the binding norm is to establish public confidence in future markets and job opportunities (in the hope that) producers and consumers will behave so as to simplify greatly the task of the stabilizing authorities" (p. 98).

"Objectives should be stated in terms of a binding floor and ceiling making

[1] *Public Investment and Full Employment* (Montreal, 1946).

for a liberal margin of fluctuations" (p. 97). A floor of 5 million unemployed is suggested to avoid the problem of differentiating voluntary from involuntary unemployed and to avert the possibility that too high an employment floor might give rise to wasteful "quasi-doles." Fears of the latter seem at odds with Egle's ideas of a carefully conceived program. And 5 million unemployed seems rather high in the present social context. Officials were decidedly fretful in 1949 when unemployment rose to some 3 million.

Problems of fixing a ceiling are rather formidable, too. Egle is inclined to think in terms of a *price* ceiling, because inflationary price movements are ordinarily ineffective in inducing expansion of output and employment. However, the degree of inflation should be specified. One could make a pretty fair argument that some inflation (say, about 2 per cent a year) is a good thing for investment outlays in a free-enterprise economy faced with possible saving-investment problems. If there is anything to the Kondratieff thesis of long waves of exhilaration and depression or stagnation, one might point to the long periods of differential price movements as offering some corroboration of this suggestion. Moreover, there are such problems as rising prices long before full employment is reached and the ever-ticklish possibility of converting upswings to downswings. Some inflation might well be tolerated to avoid the latter problem.

The principal thesis of the final part of the book is the need to back up strong monetary-fiscal tools with such direct controls as qualitative credit and even price and wage controls, as a means of coping with serious sectoral dislocations or maladjustments. Egle places particular stress on these controls during the "launching period" of his program, when the problems of rigidities and inflexibilities are likely to be particularly acute. To deal with the latter, strong action toward "competitive reform" is urged. While not wishing to dispute the merits of such reforms on other grounds, this reviewer feels that Egle handles the problem of the relationship of monopoly (or oligopoly) to business fluctuations much too glibly.

At the outset of this book there is a discussion of the relationships between the problems of stagnation and cyclical instability, which leaves much to be desired. In particular, Egle is too prone to dismiss the stagnation thesis without sufficient appraisal of its merits or weaknesses. Instead, there is a facile tendency to toss off the problem as a product of "monopolistic restrictions and undue concern with security." As a result, Egle finds "particularly aggravating" the various suggestions for stimulating private investment and lending activities, because such programs might generate unprecedented business fluctuations. This position, of course, begs the central question of his entire discussion, *viz.*, whether future secular growth of the U.S. economy will be characterized by underlying stagnation or inflationary tendencies. Correct emphasis in the area of fiscal and monetary policy requires some evaluation of long-run trends, a (thankless) task to which Egle should have addressed himself. After all, if a tendency toward chronic underemployment should, in fact, manifest itself, there is the possibility that his book would be quickly relegated to the History of Economic Thought.

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Readings in Business Cycles and National Income. By Alvin H. Hansen and Richard V. Clemence, *editors.* (New York: W. W. Norton. 1953. Pp. xi, 588. $3.95.)

This collection of readings "is intended primarily for the use of undergraduate students" for the purpose of gaining "a firsthand acquaintance with at least some portion of the literature of their subject." The 37 selections are arranged in seven groups: Historical Episodes (4 selections); Business-Cycle Theories (11); Economic Dynamics (6); Econometrics (6); International and Interregional Aspects (3); Long Cycles (2); and Cycle Policy (5). The readings are reprinted in full, and the editors have prefaced each selection with brief comments to introduce the reader to the author and his work. The "Business Cycles" of the title is apposite in that the readings deal primarily with fluctuations, while the "National Income" portion of the title is accurate in the sense that most of the articles analyze cycles on the aggregative level. In addition, several of the articles in the Economic Dynamics and Cycle Policy sections are concerned in part with the conditions for steady growth of national income over time.

The collection will be of greatest value to those instructors who teach business cycles primarily as a course in cycle theory—or, more accurately, in cycle theories. Part Two, on business cycle theories, has a strong history-of-doctrine flavor: the authors of the selections are J. S. Mill, Jevons, Alfred and M. P. Marshall, Pigou, Spiethoff, Cassel, Aftalion, Hawtrey, Mitchell, Robertson, and Kahn. The frontiers of contemporary thought are represented by the readings in Parts Three and Four, on economic dynamics and econometrics. The selections in Part Three deal with the neo-Keynesian models of Harrod, Hicks, and Metzler. It is something of a surprise to discover that only one of the six selections in the econometrics group (Einarsen's summary of his work on reinvestment cycles) is devoted to statistical work with a theoretical model. Tinbergen's "Critical Remarks on Some Business Cycle Theories" reports some of the results of his investigations, but does not reproduce his models. A third article in the group, Kaldor's "A Model of the Trade Cycle," really belongs in Part Three. The remaining articles in Part Four are concerned with methodological problems, and include the Keynes-Tinbergen controversy on statistical business cycle research.

It is axiomatic that the editors of a collection of this nature cannot please everyone. In the present instance the editors have done well what they set out to do. Given their framework, the quality of the selections is high, and a reasonable balance of differing points of view is maintained. In this context, the reviewer really missed only two readings. Keynes' "Notes on the Trade Cycle" from the *General Theory* might well have appeared in Part Two, and Schumpeter's 1935 article from *The Review of Economic Statistics* in Part Two or Three. (The latter, however, is reprinted in the American Economic Association's *Readings in Business Cycle Theory.*) On the other hand, it was a pleasure to discover that materials on international and interregional aspects of cycles and Garvy's excellent article on Kondratieff's theory of long cycles had been at last made easily available for student use.

The reviewer was somewhat disturbed by the comparative underrepresentation of the points of view of those scholars who believe that research in the field of business cycles should combine theoretical, statistical, and historical analysis. Thus Metzler's review of Burns and Mitchell's *Measuring Business Cycles,* which is included in the collection, provides a brief summary of "the National Bureau technique" of business cycle research together with a critique of the approach, but no defense of the approach appears in the volume, nor is there anywhere an example of the use of the method. The first deficiency could have been remedied by including, for example, Part V of Chapter I from Mitchell's 1927 *Business Cycles,* and the second, by reprinting Abramovitz' preliminary summary of his investigation of the rôle of inventories in business cycles, which appeared as National Bureau of Economic Research Occasional Paper 26. Again, although analyses of four historical episodes appear as Part One of the volume, no methodological discussion of the historical approach—such as that presented in Gordon's paper in the 1949 *Papers and Proceedings* of the American Economic Association—has been provided. As a final example, it may be noted that none of the several discussions of Harrod's and Hick's cycle models which appear in Part Three (with the possible exception of Wright's article) is unsympathetic to the few-variable, *a priori,* aggregative approach which they exemplify. The substitution or addition of A. F. Burns' "Hicks and the Real Cycle" (*Journal of Political Economy,* February 1952) would have improved the balance of this section. It is obvious that modifications of the type suggested in this paragraph would imply either a substantial increase in the length of the book or a sacrifice of readings—probably from Part Two—which the editors evidently felt were of greater importance for the purposes of undergraduate instruction. Nonetheless, the suggested changes would have increased the already substantial value of the book to those instructors who hold the opposing view.

Hansen appears in the volume only as joint-editor. It is unfortunate that editorial modesty has prevented the inclusion of some selection representative of his thought. His restraint is the more remarkable in that Simons' polemical review of *Fiscal Policy and Business Cycles* appears in the Cycle Policy section. The remaining readings on cycle policy include articles by Kaldor and Slichter, the committee report by the American Economic Association on the problem of economic instability, and a review of the committee report by Smithies.

The theoretical selections in the volume are complementary to those in the American Economic Association's *Readings in Business Cycle Theory.* Only one article is common to both books. The present collection is broader in scope than the earlier volume—including as it does readings on historical episodes, regional aspects of cycles, and econometrics—and covers more recent theoretical developments. It will find a place on the shelves of graduate as well as undergraduate students.

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Money and Banking; Short-Term Credit; Consumer Finance

A Study of Moneyflows in the United States. By MORRIS A. COPELAND. (New York: National Bureau of Economic Research. 1952. Pp. xxxii, 338, A235. $7.50.)

In his introduction, Winfield Riefler gives us some background information which is important to an understanding of this unusual book. "Years went into the creation of the grand design of this study. . . . Those of us who have been privileged to know Morris Copeland through his lifetime will find that every page evokes echoes that reach long into the past—echoes from his earlier absorption with accounting . . . echoes from his sojourn at the Federal Reserve Board, where he undertook to fill in the equation of exchange from empirically derived data; and echoes from his days as Executive Secretary of the Central Statistical Board where he operated so effectively to improve the quality, the comparability and the coverage of American economic statistics. . . . There are other echoes also, more personal ones, of Copeland's preoccupation with theoretical formulations and his insistence that they be subjected to empirical verification" (p. ix).

The product of this rich and varied experience, of these years of theoretical probing and factual research is beyond any question an impressive document. Readers will find much to interest and delight them: new statistical material, sharp analysis of accounting detail, fresh discussion of familiar theoretical problems. But they will also find, I think, that this is in some ways a puzzling as well as an impressive book.

It should be pointed out, to begin with, that the author undertakes to do four different things in this study: to construct a detailed set of moneyflows accounts; to compile statistical estimates of the moneyflows thus specified for the seven years 1936-42; to examine the basic concepts of a money economy; to formulate a theory of fluctuations for use in interpreting the statistical findings.

Moneyflows are payments—or receipts, depending on which way you look at them—made by one "transactor" to another. Four major types of transaction are included in the moneyflows system, or "main money circuit," as the author calls it: final product transactions—these are payments for and "primary" distributive shares arising from the goods and services that make up the Gross National Product;[1] nonfinal product transactions; transfers, both public and private; and moneyflows through financial channels, *i.e.*, transactions which "involve a change in the receivables of one transactor and the payables of the other . . ." (p. 57). As a by-product of his work on financial moneyflows the author also gives us estimates of the balances from which they are derived.

The transactors who engage in these various types of dealings with each other are divided into eleven groups: households, industrial (in the broad sense) corporations, farms, unincorporated industrial enterprises, the federal

[1] Except for imputed items, which are excluded from the moneyflows system. There are also differences in timing as a result of the fact that moneyflows are measured on a cash and GNP on an accrual basis.

government, state and local governments, banks and U. S. monetary funds, life insurance companies, other insurance carriers, security and realty firms, and the rest of the world. Intragroup transactions (*e.g.*, payments by households to other households) are included in the totals[2] but play little part in the subsequent theoretical analysis. In deciding how to divide the economy into sectors the author seems to have been guided largely by statistical considerations: "Conventions and to some extent statutes have provided a basis for handling the problems of classifying transactors. In dividing the economy into sectors, we shall follow in general the Standard Industrial Classification, and, in deciding when we have one transactor and when several, we shall for the most part take our cue from federal corporate income tax returns" (p. 38).

While the total of moneyflows is larger than Gross National Product, it falls short of the total of all transactions in which transfers of money are involved. "The main money circuit excludes a large volume of money payment transactions that are mere 'whirlpools at the side of the main flow': money changer transactions, agency transactions, and financial turnover transactions (*e.g.*, the repayment of a loan financed by an offsetting renewal). In 1942 45-50% of debits to individual accounts represented such mere whirlpools, in 1937 about 60 percent" (p. xxiii).

It is unfortunately impossible in a summary like this to give an adequate idea of how much skillful, painstaking analysis of detailed accounting problems the author performs in the process of working out the full specifications for the system of moneyflows accounts. This work makes up a large—and, for readers who are interested in the technical problems of social accounting, or who merely enjoy refined accounting analysis for its own sake, very rewarding—part of the book. Its usefulness is broadened by frequent comparison of the way items are handled in the moneyflows and in the national income accounts; these sections of the book can, in fact, be highly recommended to anyone who wants to improve his understanding of the technical aspects of national income accounting.

Construction of the detailed scheme of moneyflows accounts and of the statistical estimates to fit them would have been a big achievement by itself. But the author has not been satisfied to rest on his laurels as accountant and statistician. He has gone on to "re-examine" the conceptual framework of the money economy, and to erect on the foundation thus prepared a theory of how fluctuations in moneyflows, and hence in general economic activity, are initiated and amplified.

His examination of the conceptual framework covers such questions as: What is money? What functions does it perform? How is the quantity of money increased or decreased? What is the proper concept of "flow" as applied to money? The answers he gives are much the same as those of other contemporary monetary theorists, *e.g.*, for society as a whole money performs a scorekeeping, for the individual a cushioning function; the money supply consists chiefly of the currency and deposit liabilities of the banking system;

[2] Except for the banking sector, for which a consolidated statement is presented, and for some netting of financial transactions (see p. 191).

changes in the quantity of money are the result of expansion or contraction of bank assets and liabilities, and can hence be influenced, though not controlled, by the banking system; the way money "flows" is more like electricity than water; *i.e.*, the "process of payment is instantaneous in the sense that no paying transactor loses title to a penny of cash until title is acquired by the payee. . . ." (p. 236). Money is thus never "in circulation" as water is (*i.e.*, actually "on its way," in the pipes or other conduits from one "reservoir" or "pumping station" to another).

Readers may be somewhat puzzled as to why Copeland devotes as much attention as he does to such questions as these. To find the explanation we must, I think, recall what Riefler says in the Introduction about the years that went into the "creation of the grand design of this study" and about the "echoes . . . of Copeland's preoccupation with theoretical formulations," echoes that "reach long into the past." Much of that preoccupation was no doubt with the shortcomings of the quantity theory as it was commonly formulated in this country in the late 'twenties and early 'thirties. Having started to work out the necessary revisions before the revolutionary developments of the mid-'thirties had occurred, Copeland apparently continued to develop his ideas independently of what was happening in the main current of monetary and income theory, coming in the end to conclusions which, at least as to the basic concepts mentioned above, are much the same as those that are now generally accepted.

This hypothesis receives strong support from the first verse of the "Alternative Statement" of his views which the author gives us at the end of the book (p. 322):

> The estimates arrayed themselves in columns and in rows;
> They showed the cash each sector held; they showed its moneyflows.
> "The time has come," the Walrus said, "To talk about inflation,
> If all the cash outside the banks is cash in circulation,
> Do you suppose that moneyflows increase as cash increases?"
> "I wonder," said the Carpenter, "Let's take this thing to pieces."

Working things out independently frequently has its advantages. But there are dangers too. These are clearly illustrated by the author's attempt to construct a theory of fluctuations. The essential points of this theory are summarized by the author as follows (pp. 259-60):

> It is convenient to think of transactors in terms of a three-party system, the three parties being called respectively bulls, bears, and sheep. Bulls are transactors who dishoard to increase their spending . . . Bears are those who stint and hoard . . . All other transactors are sheep. Ordinarily sheep will be increasing their expenditures so slowly that they hoard when the volume of moneyflows is expanding . . . (and vice versa when it is contracting) . . . To the question, How do increases and decreases in moneyflows take place? we answer then: Mainly and immediately through the decisions of individual transactors about their ordinary expenditures . . .
>
> Our hypothesis implies that changes in active cash balances are a consequence of and a necessary condition to changes in moneyflows, not a cause. The increased spending of a bull results from a decision by the

bull. The decision is made possible by his ability to dishoard. His dishoarding may take the form of drawing down his cash balance or borrowing from or selling securities to banks. The hoarding of other transactors may take the form of increased holdings of cash or may take other forms.

Much of the time the question whether moneyflows will increase or decrease is determined by whether the bulls (active dishoarders) or the bears (active hoarders) predominate. But the bulls and the bears alone do not fix the entire amount of the increase or decrease. When a cyclical increase gets under way it tends to become cumulative, *i.e.*, sheep may keep the expansion in their ordinary expenditures nearly abreast of the expansion in their ordinary receipts. On the downswing too we must allow for the influence of the sheep. Contraction of moneyflows is perhaps even more likely to be strongly cumulative than expansion.

There is, of course, nothing wrong with this as far as it goes. It is, in fact, quite similar to modern, "Keynesian,"[3] income theory. The big difference is that Copeland stops short of any inquiry into motives. He does not even ask why bulls—or bears or sheep—act as they do. In Keynesian theory, on the other hand, motivation plays a key rôle. Keynesians suggest, for instance, that one of the major reasons for a transactor's being a bull is that he sees an opportunity to make a profit by buying new capital goods. They accordingly treat investors, *i.e.*, people who are in a position to make decisions about buying capital goods, as a separate group of transactors whose actions are worth special study. There is, of course, nothing new or original about this assumption. It is a familiar feature of classical and neoclassical theory. But one of the great strengths of Keynesian theory is its willingness to draw freely on its classical heritage. By linking "bullish" behavior, for instance, to decisions about the purchase of capital goods it ties the theory of fluctuations in with the theory of investment, which had already been developed to a significant extent by earlier generations of economists and to which further important contributions have been made by Hansen, Samuelson, and others in recent years.

Copeland seems to miss this point completely. The only differences he mentions in comparing Keynesian theory with his own are differences in (1) the "level of aggregateness," (2) the use of the "accrual" as opposed to the "moneyflows perspective" (p. 250), and (3) the fact that saving and investment are concerned with the "ultimate sources of capital funds—households and quasi-households—and the ultimate uses—for additions to tangible wealth . . . ," while the financial moneyflows account "aims to reveal the immediate suppliers . . . and the immediate takers of funds" (p. 185). But surely these are merely accounting technicalities. Keynesian theory could easily be restated in terms of the moneyflows perspective and the immediate sources and takers of funds. And it has already proved itself admirably suited to development toward lower levels of aggregateness.

[3] As to the relation between modern and Keynesian in this context *cf.* A. G. Hart, ***Money, Debt, and Economic Activity*** (New York, 1948). "This book is neither Keynesian, anti-Keynesian, nor on the fence. On the other hand, it is definitely not *pre*-Keynesian" (p. vii).

Why is Copeland reluctant to inquire into motives? We cannot be entirely sure of the answer. But there are some clues which may be significant. One of these is a statement in the last chapter concerning "habit patterns;" "Our analysis has made little use of habit patterns. What can be done with habit patterns when observations are confined to seven years is necessarily limited" (p. 333). One is tempted to turn this statement around and say: "What can be done with seven years (or any other period) when observations bear no relation to habit patterns is even more limited." Like the Institutionalists in economics, and the Behaviorists in psychology, the author apparently hopes to derive his theory from his observations. But without any theory to begin with, without any "habit patterns" in mind to test, how can he know what things to observe? If, for example, we are to learn anything about the causes of economic fluctuations from statistics of moneyflows and loanfund balances we must divide transactors into groups which have some relation to the phenomena we are studying. We are not likely to have much success if we adopt any basis for classification that happens to come to hand; say, by age groups, or by degree of consistency in voting record, or by religious affiliation, important though these groupings are for other purposes. Perhaps if we went on indefinitely testing systems of classification we should eventually stumble on a significant one. But that of course is quite impracticable. We need to use everything we know about the way people behave to set up categories which at least have a good chance of turning out to be significant. Only in this way can we hope to narrow the range of possibilities enough to make the problem manageable.

Copeland sets up his scheme of classification, *i.e.*, his eleven transactor groups, without any explicit reference to his theory of fluctuations. He notes in passing that: "To the extent that a transactor group includes members of all three parties at the same time we may have trouble . . ." (p. 260). But apparently he sees no connection between this danger and the way in which the transactor groups were chosen to begin with. His remedy is simply to increase the number of groups, still without inquiring into the motives they might have for behaving in one way rather than another in relation to fluctuations in economic activity.

Actually, Copeland's practice is better than his theory. Although he does not explicitly relate his transactor groupings to his three-party theory of the bulls, the bears, and the sheep, it turns out that there is a certain amount of correspondence between the two. This correspondence is not nearly as great, however, as it could be. By rearranging transactor groups and reclassifying types of transactions in ways that are appropriate to test various hypotheses, other investigators will, no doubt, be able to make more use of the wealth of material on moneyflows and loan fund balances we have here. Copeland might have gone further in this direction if he had not been handicapped by his inhibitions against using "subjective" theory. This should not, however, obscure our recognition of the important job of statistical spade work he has done, work which will facilitate the efforts of all future workers in this field.

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La Federal Reserve et les difficultés monétaires d'après guerre 1945-1950. By MARCEL RIST. (Paris: Librairie Armand Colin. 1952. Pp. xiii, 365. 1100 fr.)

In the literature dealing with the rediscovery of monetary policy following the oblivion of the 'thirties and the 'forties, this book on the Federal Reserve System and the postwar monetary difficulties has a special place. Written by Marcel Rist, the grandson of Charles Rist, the dean of the French economists, the book has the distinctive French quality of making clear an essentially complex matter. True, the American reader acquainted with the Douglas and Patman committees' material and with the writings of Chandler, Goldenweiser, and Roosa will find little that is new in Rist's account of the postwar monetary developments and policies in the United States. Nevertheless, he will greatly enjoy the skill with which the author handles the sequence of events and the course of the monetary policy debate; and he will be glad to know that those French and other European readers who do not have access to American sources can find in Rist's book a fair and comprehensive interpretation of the postwar monetary history of the United States.

For the American reader, the chief interest in the book rests in the fresh look that the author takes at the postwar American experience. Rist first endeavors to appraise this experience from the viewpoint of monetary theory, more particularly in the light of the Hicks-Hansen liquidity function model, which he has somewhat rewritten and newly qualified in order to make it more realistic; the upshot is quite interesting even though it adds little, I believe, to the conclusions arrived at otherwise. Rist then sets forth the American experience within the general framework of central banking trends as these have developed during the postwar years. This is the most valuable part of the book and deserves close scrutiny.

Rist's contribution to the understanding of the American experience is threefold: he initially formulates a "theory of government bond support"; he then reviews "the possibilities of monetary policy under government bond support"; and finally, he confronts the American experience with "the theory of central banking." The support-policy experience in the United States is, of course, a unique field of study, since those few other countries that had attempted a similar course had given up much earlier (in the longer-term market, the United Kingdom in 1947 and Canada and Sweden in September 1950); as to those continental Western European countries that "insulated" a portion of government debt by requiring the commercial banks to hold secondary reserves in the form of government securities, they had done so for the purpose of restraining private credit rather than of stabilizing the terms of government borrowing, and indeed had raised interest rates as an integral part of the restrictive monetary policy. The uniqueness of the American experience is, therefore, in itself a sufficient explanation why a European student should be tempted to learn and write about it. Rist apparently also wanted to investigate, in its various phases and its outcome, a policy that he regards as having been contrary to one of the basic rules of traditional central banking, namely that credit availability can be effectively controlled only

through general or quantitative action, which in turn implies a flexible interest rate pattern.

It is from this viewpoint that Rist systematically analyzes the psychological, financial, and economic consequences of the support of the government bond market by the central bank and the resulting monetization of the government debt, reviews the controversy between the monetary and the fiscal authorities that marked the United States scene from 1945 to early 1951, and endeavors to define the field that is left under these circumstances for monetary policy. Rist's conclusion is that, within the framework of such a support policy, the discount rate ceases to be an effective instrument, and increases in reserve requirements can be nullified by the sale of government securities by commercial banks in order to obtain reserves; nor can fiscal policy, including the accumulation of a budgetary cash surplus, be effective so long as the economy remains abnormally liquid. True, postwar inflation in the United States was limited; but that was the result principally of the adaptability and productivity of the American economy and of the willingness of the American public to retain cash, idle deposits, and government securities; in Western Europe the same policy and practices would, in Rist's opinion, end in a much greater inflation.

Against this background Rist puts forward in his final chapter the lessons to be drawn from the rediscovery of monetary policy in the United States. Rist believes, first, that effective central bank control has not been necessarily impaired by the enlargement of government debt and its wide distribution. Secondly, he strongly feels that no particular importance should be attached to any given level of interest rates, but rather that attention should be focused on credit availability. His third general observation concerns the critical rôle of the lenders in the chain through which small changes in interest rates (or the mere expectation of such changes) induced by the monetary authorities may have appreciable influence on economic activity.

What I miss here are certain qualifications and reservations that would make Rist's conclusions somewhat less categorical. More particularly, I find some difficulty in Rist's underlying assumption that the objectives of debt management differ of necessity from those of monetary management. The problem of assuring lodgment of the debt during a phase of credit restraint is a real one even though economic and monetary considerations rather than merely those of technical placement should be given the decisive weight. Nor can monetary and credit policy be worked out in the complex real world merely on the basis of elaborate models built on a few simple assumptions: to be effective, it must rest on the empirical judgments of those responsible for it, with both the money and capital markets and the general economy regarded as an integrated whole. Finally, Rist does not seem to have fully realized that the central bank is not the sole arbiter of economic and financial policy. Nevertheless, with these qualifications and reservations, Rist's book is a notable contribution to the recent writings on monetary theory and policy and deserves to be read carefully on both sides of the Atlantic.

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Central Banking in Undeveloped Money Markets. By S. N. SEN. (Calcutta: Bookland Ltd. 1952. Pp. viii, 246. 18*s*.)

The great interest shown in problems of economic development of underdeveloped countries makes this book a timely and useful publication. Much of what is being written about development suffers from vague generalizations since the problems involved are formidable and the geographical differences infinite. If we want to get beyond these generalizations, more detailed studies like the present one are needed. They are difficult to do. The material to be digested is large and diverse, thus making it hard for the writer to come to some tentative conclusions which are applicable beyond a very limited regional field.

Mr. Sen has written a good book which can show those who are interested in development the complexity of even limited aspects of their vast problem. It is also a concise study of modern central banking in countries which, though important, are, as a rule, not dealt with in the standard literature.

For the student of money and banking it is always fascinating to watch the time gap between the emergence of financial problems and the ability of financial institutions to deal successfully with them, or to realize that some central banks were obsolete before they started to operate. Sen's book illustrates the opposite extreme. Central banks in undeveloped countries were anachronistic because their credit instruments were designed for far more developed financial systems. In this little volume we find many case studies which can be used as warning for those who believe that they can help underdeveloped countries by directly applying to them what may be proper policies for highly developed economies. For instance, what use is there in suggesting the raising or lowering of the Bank Rate when commercial banks and other financial institutions do not discount at the central bank?

Sen gives an excellent account of the difficulties met in the application of such conservative monetary instruments as discount or open market policies in undeveloped money markets. He comes to the conclusion that the changing of reserve requirements, together with qualitative controls, should be heavily relied upon. In addition, he points out that central banks in countries with undeveloped money markets will probably be charged with the duty of helping finance development. This tends to widen their task beyond the mere control of commercial banks.

Considering the important tasks which these central banks have to fulfill and the limitations which undeveloped money markets impose on the use of traditional credit instruments, Sen comes to the conclusion that a combination of very broad powers (such as were given to those central banks which were established after World War II) with a minimum of "detailed statements of what the bank is to do under every possible sort of occasions" would be the best arrangement. However, he realizes that such a system "depends more upon the men whose business will be to run the machine than on any legal formula."

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Business Finance; Investments and Security Markets; Insurance

Conference on Research in Business Finance. Held under the auspices of Universities—National Bureau Committee for Economic Research. (New York: National Bureau of Economic Research. 1952. Pp. xviii, 340. $5.00.)

Here are the texts of eight papers presented and discussed at a conference held by the Universities—National Bureau Committee in June 1950 to appraise the contemporary status of research in business finance. Planned and conducted as the conference was, the report could not and does not emerge as a monograph. With more advance communication between the participants there could have been less reiteration of the obvious and the space and talent consumed in duplication could have been used to treat areas which the survey left untouched.

Each paper is a special study in itself and the discussions that follow the papers extend well beyond the bounds of mere comment. By way of example, the paper entitled "Factors Influencing Managerial Decisions in Determining Forms of Business Financing" (a joint study by Neil H. Jacoby and J. Fred Weston) is 40 pages long and the discussions run to 11 pages; the paper in two parts by Edgar M. Hoover and Burton H. Klein, and Albert R. Koch, dealing with "Factors Influencing the Demand for Funds by Business Enterprises and the Problem of Projecting Business Capital Requirements," with discussion and comment, takes up 55 pages. This review, therefore, will be confined to general observations.

The reports are replete with references to the inadequacy, incomparability, and unsuitability of available statistical data. For example, when the flow of funds into and out of the corporate system, or an industry, or a firm is studied by the "sources and uses" approach, the bases for reconciliation of "surplus" and valuation adjustments are revealed so dimly in the income and balance sheet data that one wonders (again, as often before) why companies take the trouble to prepare these statements at all, or the Bureau of Internal Revenue to tabulate them.

It is encouraging to find the conference paying its respects to the dynamic or operational approach in contrast to the older too-long-revered static or ratio-analysis approach. One participant observed that, since most of the circulating capital of a business comes from sales, financial analysis should begin with sales methods, volume and pricing policy, and include the time factors involved. Another participant found a definite association in a growing firm between the stage and rapidity of its growth and its sources of funds. Another proposed that equity and debt capital for small and medium-sized businesses be studied by questionnaire; inquiries should be made concerning the "duties and capacities of present management, as indicated by training and experience of officers and the utilization of professional and technical assistance"—a considerable departure from balance sheet analysis! Still another urged that old firms be handled separately in global studies of asset and capital structures because new firms obtain capital from different sources and have more fixed assets.

The empiricists present complained that what men do, as put down in their records, does not reveal what men think or why they think as they do. Opinion polls were proposed: "What is the main reason you went into business for yourself?" Returns from one such revealed that two-thirds were motivated by independence, ambition, and opportunism. By contrast, there were studies which purported to find an "investment function" that was primarily related to profits. (Or are *opportunism* and *profits* interlaced?) The policy-makers, anxious as always to maintain "general economic stability and growth," reported on their search for projections, either empirical or logical, by which they might keep the investment/output ratio more stable than it has been in the past. Toward this achievement they also pleaded for better statistics and better models. As Keynesian as are the bases for projection models, one paper found that interest rates were no longer important in investment decisions and another expressed the doubt that an investment/national-product percentage established for one period could be expected to apply in the next: "Investment motives in our society are extremely complex." A list of factors determining the decisions of management with respect to kinds of financing may be found on pages 167-72, several of which could be subjects for doctors' theses or for staff research.

Old-fashioned deductive analysis did receive a respectful hearing. The paper, "Costs of Debt and Equity Funds for Business: Trends and Problems of Measurement," contained a well-reasoned treatment of basic concepts and basic issues. The author began with the hypothesis that it was to the businessman's interest to maximize his capital instead of his profits and proceeded to show that capital, when taken as the discounted value of anticipated income, had important implications for cost analysis and investment decisions provided that income be forecast in full recognition of the difference between the capitalization of net income and of net operating income—leverage being understood as a decisive factor in the choice between equity and debt financing.

Econometrics had its day in the last paper preceding the "Summary." For those interested and with faith in this methodology the paper will suggest further avenues to explore: the assumptions, the variables, and the correlations can be re-examined, rechosen, and recomputed, respectively or in any order; or the data can be further questioned and further refined, ad infinitum.

The book should prove useful to teachers with the time and to business firms and government agencies with the budgets for financial research, as well as to professors who conduct seminars in finance or help candidates to choose subjects for dissertations. The papers and discussions will suggest new areas to be worked and problems that remain to be solved.

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Introduction to Business Finance. By Bion B. Howard and Miller Upton. (New York: McGraw-Hill. 1953. Pp. x, 565. $6.00.)

This is a textbook on business finance that differs considerably both in

content and angle of approach from the more widely used books on corporate finance. The authors have sought to correct what they conceive to be the defects in the traditional treatment, namely the over-emphasis on the financial problems of large corporations, the needless concern with financial institutions and instruments, and the use of space to discuss the socio-economic aspects of corporate financial policies. All of these things presumably distract the student from the central problem of administering the finances of a business and, moreover, they correlate badly with other courses taken by the student of business.

To overcome these assumed defects the authors have written a volume that is straight and undiluted *financial management*. Conceiving the most important function of a course in finance to be teaching the student how to maintain the solvency of a business and maximize its profits, the first half of the book is devoted to flow-of-funds analysis, and to budgeting and financial planning. This, in the main, represents the most radical departure from the traditional approach to an understanding of the financial problems of business. The remainder of the book is concerned with the more familiar material on various possible sources of funds. Here the authors emphasize short-term rather than long-term financing; but on the whole this section does not differ greatly from most of the existing textbooks on corporate or business finance.

Subject matter dealing with forms of business organization and types of debt and ownership securities is extremely condensed and presented in an early chapter on the sharing of risk, income and control. Similarly such topics as the valuation of a business and business failure, recapitalization and reorganization are treated as non-recurring financial problems in a brief section at the end of the book. Here the student will find almost no mention of the complicated legal procedures that are a part and parcel of the reorganization process and are usually allotted much more space. But this is in keeping with the flavor of the entire book which characteristically minimizes the legal and regulatory aspects of financial practices. The student will know that there are such things as the Securities Act of 1933, the Securities Exchange Act of 1934, and the amended Bankruptcy laws, but that is about all, for these receive little systematic treatment anywhere in the book.

This is not necessarily a weakness, for it is clear that the authors have consciously chosen to strip from the study of the financial management of a business material that they consider to be dispensable or even extraneous. Presumably most of the legal and regulatory aspects of finance can be left to the lawyers; just as the study of the nature of corporate enterprise, its position in our economic structure, and the problems of public policy it raises can be left to economists, political scientists, or philosophers. The proper study of finance is finance. And the financial manager should master the techniques of administering cash so as to maintain solvency and provide for growth. That is job enough.

This is clearly an entirely sound position to take. The test of a good textbook is the purely pragmatic one of whether it is an effective vehicle for

achieving a particular educational purpose. Howard and Upton have succeeded in providing the student of business with a thorough and reliable guide to a basic training in planning and administering the funds of a going concern, whether large or small. In general the authors build this training upon the student's knowledge of accounting—and a good grasp of accounting principles and procedures is presupposed—showing how the balance sheet and profit and loss statement can be analyzed and supplemented to reveal financial condition and the sources and uses of funds. From this they move to a long and detailed discussion of financial planning and budgeting, which, because of the unavoidable intricacies of the subject will be the hardest for the beginning student to grasp. This is the heart of the book and lends much to its distinctive character.

The remainder of the book deals with short-term sources of funds—trade credit, commercial banks, commercial paper houses factors, etc., and long-term sources of funds—bonds, stocks, loans, and owner investment. There is also a chapter on term loans and equipment financing. Here the treatment is more or less traditional with perhaps somewhat more complete coverage of short-term financing than is usually found, and with emphasis on day-to-day practical problems of all types of business. Incidentally, the reader might be inclined to ask if detailed and intricate financial planning for very small business concerns is at all realistic.

The authors have used illustrative material—usually tabular in form—with good judgment and balance. Their style of writing is direct, concise, and clear. Footnotes are reduced to a minimum. List of questions are appended to each chapter for those who wish to use them, but there are no references for further reading. Perhaps the subject matter could have been made to come alive a bit more if there were more references to actual situations and incidents, but the cost of expanding the wordage may well have been too great.

There is ample evidence of care and competency in the authorship of the book. There is no doubt that it is written by men who know the subject well and who from experience are convinced that this is the most effective way to teach it. At a few points one might quarrel about matters of emphasis, but few serious errors have crept into the book.

For those who want a strictly vocational approach to business finance, and wish above all else to train the student in the techniques of financial management, this volume has much to offer. Although the student will find the going somewhat laborious and detailed at the beginning he will be amply repaid for the extra effort—if he wants to know financial management. And many teachers who feel that existing texts are too broad in scope and give too little attention to detailed procedures will welcome this practical textbook and find that it can be used effectively in business finance courses where the student has had previous work in accounting and financial institutions.

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International Economics

La Communauté Européenne du Charbon et de l'Acier. Par un groupe d'étude de l'Institut des Relations Internationales de Bruxelles. Cahiers de la Fondation Nationale des Sciences Politiques, 41. (Paris: Librairie Armand Colin. 1953. Pp. 338.)

Der Schuman-Plan: Eine Untersuchung im besonderen Hinblick auf die deutsch-französische Stahlindustrie. By DR. CARL HORST HAHN. (Munich: Richard Pflaum Verlag. 1953. Pp. 158.)

Der Schuman-Plan im Europäischen Zwielicht. By FREDERICK HAUSSMANN. (Munich and Berlin: C. H. Beck'sche Verlagsbuchhandlung. 1952. Pp. ix, 266.)

Le Plan Schuman: Ses mérites—Ses risques. By J. F. KÖVÉR. (Paris: Nouvelles Editions Latines. 1952. Pp. 232.)

Le Plan Schuman dans la perspective Luxembourgeoise. By LÉON METZLER. (Luxembourg: Imprimerie de la Cour Joseph Beffort. 1951. Pp. 98.)

Das Monopolverbot im Schuman-Plan. By ROBERT KRAWIELICKI. (Tübingen: J. C. B. Mohr [Paul Siebeck]. 1952. Pp. ix, 122.)

The literature on the Schuman Plan is already voluminous, and miscellaneous in quality and usefulness. A German bibliography published early in 1953 lists over 1300 items, the majority, of course, magazine articles and pamphlets.[1] A few of these are of considerable value for their analysis, their facts, or their expressions of points of view; most are descriptive, and therefore inevitably repetitious, or they present well-known arguments uncritically. Parliamentary debates, including committee reports, are by far the most interesting and enlightening parts of the official literature, though government pronouncements on the aims and rationale of the heavy industry pool are not to be neglected. A new flow of important publications is now coming from the European Coal and Steel Community, which began functioning in the fall of 1952. So far this material includes a *Journal Officiel,* published from time to time, that records the acts of the High Authority and other agencies, and, in supplements, prints the debates of the Common Assembly; two reports by the High Authority; a mimeographed series of press releases under the general heading of *Bulletin d'Information;* and several mimeographed and printed statements and reports.

There are also a number of books devoted to the Schuman Plan, most of them listed above. The detailed, careful, objective analysis prepared by a study group of the Institut des Relations Internationales of Brussels may well become a standard work. This book is primarily concerned with organizational and, to some extent, juridical matters, especially the distribution of powers and functions among the organs of the Community and between the Community and the participating governments and enterprises. This may sound arid and uninteresting to those who want to know about the economic and

[1] Institut für Europäische Politik und Wirtschaft, *Bibliographie zum Schumanplan, 1950-1952* (Frankfurt am Main, 1953), 151 pp., mimeographed.

political problems of the Coal and Steel Community but the analysis has a significant bearing on these problems and is of basic importance for anyone who wishes to make a close study of this new venture in European cooperation. Take, for example, pages 35 to 53, where over one-hundred powers of the High Authority are grouped in fourteen categories, according to that body's freedom of action, its need to consult other bodies or get their agreement, etc. This sounds dry as dust, and so it is if you try to read it through, but it is an essential step in studying one of the key questions about the Schuman Plan: How much truly supranational authority is there, and how much is left to national governments, acting separately or through the Council of Ministers?

Much of the Belgian group's book brings together and interprets the provisions of the long and complicated treaty, a service that is particularly valuable in the matters of prices, cartels and concentrations, and the relations of Schuman Plan countries with third countries. Several more general chapters discuss the organizational nature of the Coal and Steel Community and compare it to other kinds of international arrangements and federations. There is a systematic comparison of the aims, organization and methods of the Schuman Plan with those of the prewar international steel cartels; and several contributors refer to the compromise of economic philosophies apparent in the treaty. No striking new conclusions about the Schuman Plan emerge from this book, but the study group has produced a painstaking handbook and guide that throws light on the treaty and provides tools of analysis for which those who come after should be grateful. A job worth doing has been well done and will now not have to be done again.

Dr. Hahn begins with an analysis that incorporates many of the criticisms of the Schuman Plan that have been made in Germany. Allied controls over production, the lack of recent investment in heavy industry, and decartelization give Germany a poor starting position compared with France where steel production has been expanded and modernized, according to this view. All the other countries in the Community have a common interest in getting easier access to German coal, but nothing is done to help Germany get iron ore: French African supplies are not covered by the treaty and the new arrangements may hamper Germany's freedom of action in exporting coal in exchange for Swedish iron ore. This case rests in part on the assumption that the members of the High Authority will continue to reflect the interests of the countries from which they come, instead of acting as supranational officials, pursuing the best interests of the whole Community. Hahn prefers the more flexible arrangements of the prewar cartels, in which a member's influence was closely related to his economic strength; he also argues that a more workable compromise of national interests would be assured by requiring unanimity on major issues.

The main contribution of this book lies in a long chapter examining the possible effects of the Schuman Plan on costs in the French and German steel industries. Hahn expects no radical changes. Lorraine iron ore is of secondary importance to the Ruhr, and the treaty will not help reduce the cost of

Swedish, Spanish or African ore. German coke is unlikely to be much cheaper in France than it was before, for a variety of reasons; moreover, in Hahn's opinion, new processes will soon permit Lorraine to supply its own coke. Wage rates plus taxes and social charges vary less than is ordinarily supposed, according to Hahn's calculations, and in any case are much less important than raw materials in determining steel costs. He adduces many other considerations to support this line of argument. At times one suspects Hahn of the *de minimis* fallacy: having calculated that not much reduction in costs will result from this or that effect of the treaty, he dismisses the subject without allowing for the possible cumulation of small items. Nevertheless, the argument is fairly persuasive, at least so far as the first few years of the Schuman Plan are concerned.

It is not always clear how far into the future Hahn means to project his conclusions. Some of the arguments about the level of costs would seem to apply for a long time to come, but might be offset by changes resulting from the common market and the High Authority's guidance of new investment. Hahn argues, however, that a common market confined to heavy industry is unlikely to help much in raising the general level of European demand. Only if a large market develops for durable consumers goods and other products using steel can the new French continuous strip mills bring costs down to American levels, in Hahn's view. (Recent studies by the Economic Commission for Europe, on the other hand, stress the effects of lower steel prices in stimulating demand). Nor does Hahn think that the Schuman Plan can do much to stabilize the European economy, so long as it is confined to coal and steel.

These considerations reinforce a view Hahn shares with many who have examined the Schuman Plan: that it cannot work effectively so long as monetary and fiscal policies are wholly in the hands of national governments. In these circumstances, Hahn believes, the price system cannot work effectively in the common market and investments will continue to be made primarily on political grounds. Believing that for political reasons the Schuman Plan must be made to work, he argues that the High Authority must begin by performing cartel-like functions. Then, the only way to avoid some kind of super-*dirigisme,* will be to create a unified European market in all fields. Not all of Hahn's arguments are convincing, but his thoughtful and knowledgeable book needs to be taken seriously. It is valuable, too, for the large body of rather detailed information it contains on the French and German steel industries.

As Haussmann's title indicates, his main aim is to show that the Schuman Plan is not as simple and clear-cut as many statements about it imply. The book is successful in achieving this admirable purpose even though its chapters are of somewhat uneven quality, not all of them closely related to the main line of reasoning. Some are useful reports on reactions to the Schuman Plan in major countries, illustrated by copious quotations. There is a heavy attack on the German neoliberal school of economic thought but it is not always clear whether Haussmann is objecting to what he considers a false interpretation of the treaty by the school or an undue influence of this line of thought on the drafting of the treaty. There is an interesting analysis of

the probable connection between the Monnet Plan for French investment and the expected enlargement of the European market through the Schuman Plan. Lengthy appendixes include information and statements on a variety of subjects, some of them peripheral to the main theme, and also the German text of the treaty.

Kövér's book is a good deal less critical than those mentioned so far. Much of it is a rather general discussion of what may be called the "official doctrine" of the Schuman Plan. The stress is on the hopes invested in the plan and on the great changes that may come about. But there are warnings of pitfalls and particularly of the difficulties that may result if supranational arrangements do not emerge in other fields as well. The most interesting part of the book is the commentary on the labor provisions of the treaty and the speculation about some of the political and economic problems that may arise. Kövér points out that the nature of industrial organizations may be much influenced by the treaty's stipulation that the High Authority can call for information from producers' associations only if they "give a satisfactory place in their organization to the expression of the workers' and consumers' interests" (Article 48). It would have been interesting if he had pursued this thought somewhat further and discussed its possible syndicalist or corporativist implications. In addition to the French text of the treaty, the appendix contains a useful tabulation of some of the powers of the High Authority and of the Council of Ministers.

Writing before the treaty was ratified, Metzler was fearful that in a common market Luxembourg would suffer great disadvantages because of its high wages and social charges. The longest chapter in the book, staccato, aphoristic, and very general in statement, is an exhortation for a changed attitude in Luxembourg's domestic affairs so as to ensure its ability to compete. So far as the Schuman Plan proper is concerned, the book is useful primarily for some details it gives about the special position of Luxembourg where 85 per cent of the economic activity is in coal and steel, and for a rather full statement of the view that cartels are useful instruments of industrial organization and government. At the beginning of the book the author appears to endorse the Schuman Plan, but at the end he calls for a re-examination of it.

Krawielicki participated in the negotiation of the Schuman Plan treaty as an official of the German Ministry of Justice and is now in the legal division of the High Authority. His book is an exegesis of the passages in the treaty referring to restrictive practices and the concentration of economic power. He calls attention to problems of interpretation, explains the philosophy of certain provisions, and compares the treaty principles and language with past and proposed German cartel law, with some references to French administrative law and American antitrust concepts. While Krawielicki does not elaborate any general philosophy about cartels and competition, it is plain from his analysis that he regards a free competitive market as of the essence of the Schuman Plan and interprets the treaty as providing quite clear law on the subject. Haussman devotes an appendix to a highly critical review of the book, attacking it as oversimplified law and economics. There is substance to some of these objections but Krawielicki's guidebook is something one

ought to consult before reaching conclusions about the meaning of the treaty's provisions on restrictive practices and the concentration of economic power.

Taken together these books, and particularly the first four of them, contribute substantially to an understanding of the nature of the Schuman Plan treaty, the problems facing the European Coal and Steel Community, and some of the main attitudes toward the new venture that exist in Europe. They are far from exhausting the subject and for any thoroughgoing study have to be supplemented by periodicals and documents. None of them is the comprehensive and well-rounded book one would like to have available for those who cannot devote a lot of time to the subject. So far as assessing the Schuman Plan is concerned, only one common conclusion emerges from these books, and that is the obvious and commonsense conclusion of almost everyone who has looked seriously into the matter. It is the conclusion that begins, "It all depends. . . ." So annoying to enthusiasts or to those who want to *know* what is going to happen, it is plainly the only general statement for which there is adequate intellectual warrant. So cautious a view does not encourage eloquence, but the Belgian study group's report puts the matter as well as anyone (p. 323):

> As to the future of the institution, one can say that it will depend on the policy followed by the High Authority and on the attitude adopted by national interests. The instrument exists. Without being perfect, it incorporates a balance of tendencies that makes success possible. Everything will depend on the intelligence with which the instrument is used and on the way in which the first difficulties are resolved.

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The Sterling Area. By A. R. CONAN. (London: Macmillan. 1952. Pp. ix, 192. 16 *s.*)

Britain, the Sterling Area, and Europe. By F. V. MEYER. (Cambridge: Bowes & Bowes. 1952. Pp. viii, 148. 21 *s.*)

The Sterling Area—An American Analysis. By The Special Mission to the United Kingdom, under the direction of JOHN M. CASSELS. (London: Economic Cooperation Administration. Washington: Supt. Docs. 1951. Pp. 668. $3.00.)

During the critical years of the postwar period, when the British pound underwent first a convertibility crisis, then a devaluation crisis, and finally a rearmament crisis, there has been a dearth of both reference and analytical material on the relationship of Britain with those overseas regions inseparably linked to British difficulties through operation of the Sterling Area system. These three books are designed to fill the gaps in our knowledge of the Area's operation and difficulties. The authors are notably successful in certain respects, only partially so or not at all in others.

The need for collected reference material on Sterling Area member countries

is met in a comprehensive fashion in the Economic Cooperation Administration study directed by John Cassels, which provides a summary of the postwar economic developments of the Sterling Area as a unit (with special reference to its dollar position), of the individual economies of independent members and colonies, and of the main commodities in Sterling Area trade—this last of special importance in view of the awakening American interest in the world resource picture. With elaborate charts, extensive tables, and a text which is clear and concise but does not go beyond a factual summary of the relevant economic information, this book will serve as a useful reference work for a number of years to come, not only for those interested in the Sterling Area or the British Commonwealth but also for all students of international economics.

The problems of the Sterling Area are both external and internal; important changes have taken place since the 1930's in (1) the Area's balance of payments position with the outside world, and (2) the internal mechanism and center of gravity among members of the monetary group. In assessing the nature of the Area's difficulties, F. V. Meyer and A. R. Conan attempt to determine whether it is the United Kingdom or the R. S. A. (Rest of the Sterling Area) which has been responsible for the balance of payments difficulties with the whole nonsterling world. Conan (p. 65) adds the total current balance of each member region and terms the sum the current balance for the Sterling Area, arguing that in 1938 the United Kingdom contributed 70 per cent of the Sterling Area deficit, whereas in 1947 the ratio was 50/50 and in 1948/49 the United Kingdom was in equilibrium while the over-all deficit was on overseas account. This is misleading, for it includes intra-Area transactions. The United Kingdom's position is made to look favorable only because it has had a surplus with R. S. A. throughout the postwar period, a surplus generated by use of sterling balances and protected by discriminatory exchange controls. Meyer (p. 71) takes account of intra-Area trade by adjusting for the change in intra-Area sterling balances (unrequited exports and imports), a technique which proves very confusing for the reader and would not seem to be any more correct than merely eliminating intra-Area current surpluses and deficits; but at any rate, Meyer gives a truer account of the relative position with the nonsterling world of the United Kingdom vis-à-vis R. S. A. than does Conan.

When, however, it comes to the responsibility for the dollar drain in particular, Meyer is inconsistent with his earlier reasoning on the total deficit, viz., that intra-Area balances must be considered in computations. As a result, he grossly exaggerates the United Kingdom's contributions to the Pool. The assertion that ". . . it is justifiable to regard any United Kingdom surplus on the balance of payments on current account as a contribution to the Pool, however indirect, if this surplus is due to a surplus with the R. S. A." (p. 78) appears untenable to this reviewer, and will no doubt seem a little unfair to member governments who have reluctantly, for one reason or another, given up dollar earnings for British goods in the face of agreements on discriminatory exchange control regulations.

Conan, on the other hand, determines his estimates of responsibility for the

dollar difficulties solely on the basis of commodity trade. Presumably he uses this technique in order to break down the position for individual overseas members, which Meyer does not attempt to do at all. Actually, fairly good approximations of total dollar drawings and contributions of individual members can be formed from bits and pieces of published material.

In spite of these statistical deficiencies, Conan draws some interesting conclusions from his evidence. He determines that the Sterling Areas's position with the nonsterling world has changed little *in real terms,* but rather that it has been the price changes which have been crucial. Before the war, the Area as a whole had a commodity deficit, both with the rest of the world and with the Dollar Area in particular. Therefore, an equal proportionate rise in export and import prices (the volume of trade unchanged) would enlarge the deficit. Such a commodity price rise does not, however, increase investment income and other invisible receipts nor the value of new gold production, both of which were used to meet the commodity trade deficit before the war. But not only did all commodity prices rise with the exception of gold up to September 1949; there was in addition an adverse shift in the terms of trade for the Sterling Area as a whole. These conditions meant that the Sterling Area in 1948 could export 171 per cent more to the Dollar Area than in 1938, import only 10 per cent more, and yet have serious dollar difficulties.

Any policies directed toward solving the Sterling Area's external balance of payments difficulties *must* take into account the internal operation and cohesiveness of the system. Interpretive analysis of the internal problems of the Sterling Area has in the past, however, been woefully weak, consisting for the most part of 30 or 40 articles written by economists or bankers. Almost all of these writers have been chained to one line of thought: the postwar Sterling Area system is a "natural" outgrowth of the *de facto* sterling exchange standard which existed before World War I and the voluntary association of the 1930's called the "Sterling Bloc"; and there has been little essential change in the operation of the network or in the traditional bonds which hold it together, viz., the large volume of complementary trade, the use of London as a financial center and source of capital, and the common political heritage of member regions. Meyer tends to perpetuate this interpretation through taxonomic analysis of the cohesiveness of the system. Conan's work, on the other hand, while ostensibly limited to a factual summary of changes which have taken place within the Sterling Area, shows in an implicit fashion at least some of the war and postwar developments which have lessened the pull of the center on overseas members, thus making the system less cohesive than is usually assumed.

Meyer is convinced that any solution of British difficulties is dependent upon an extension of activity overseas, and the least painful way to accomplish this is to develop new markets. Most of Meyer's book is devoted to showing that extension into the Sterling Area and Western Europe is not only possible but profitable, both for Great Britain and for the other members of each group as well. British efforts should thus be directed toward a tightening and strengthening of already strong ties with each monetary region (in the case

of Western Europe possibly through a customs union) rather than toward nondiscriminatory multilateral trade.

The benefits which might be derived from a customs union with competing economies in Western Europe appear to Meyer to stem largely from the great external strength (bargaining or monopoly power) afforded the participants in their dealings with the rest of the world. An appendix using reciprocal-demand analysis indicates the conditions under which such bargaining power through the customs union device may be most effective. While many may question Meyer's objectives in proposing such a union, his reasoning is probably sound. This is not true, however, when he argues the case of mutual profitability of existing Sterling Area arrangements with an eye toward extending economic activity in this direction.

According to Meyer, there are two main advantages to the postwar Sterling Area system which accrue to the United Kingdom and to overseas members alike: (1) stability in exchange rates afforded by operation of the sterling exchange standard, *i.e.*, the holding of reserves in London by overseas members; and (2) access to the Dollar Pool, which reduces the need for import restriction and the accumulation of larger individual reserves on the part of member countries. Because of the complementary trade between the United Kingdom and overseas regions, the effect on exchange rates of cyclical swings in the relationship between prices of primary products and of manufactured goods will be minimized by increased loans to Britain in the form of sterling balances when the prices of primary products increase relative to prices of manufactured goods, and by the drawing of sterling balances when the terms of trade shift in the opposite direction. Without such a union, a decline in primary product prices which was more severe than a decline in prices of manufactured goods would mean appreciation of sterling and a consequent intensification of the adverse shift in terms for primary producers. Similarly, a primary product boom would, without monetary union, mean an even greater favorable shift in terms, because sterling would be devalued. Alternative gains and losses under different conditions are carefully worked out by Meyer, but the general conclusion is that overseas members of the Sterling Area gain as much as, if not more than, the United Kingdom by stabilization of the external value of sterling through operation of the sterling exchange standard.

The advantages of the Sterling Area financial mechanism have traditionally been an important cohesive element. But stability in exchange rates is not costless, and Meyer throws in the "costs" as merely an afterthought. First, there is the fact that the burden of building up reserves (in the sense of giving up goods) falls on the overseas members; they are lending to Great Britain and withdrawing their own loans, not vice versa. Secondly, while shifts in real income *consequent upon changes in the terms of trade* may be minimized, as Meyer indicates, by stability in exchange rates under the sterling exchange mechanism, stabilization of members' internal economies is probably thereby made more difficult. For example, in a period when primary product prices were falling by more than prices of manufactured goods, the deficit would probably be larger, and the deflationary income, price, and money supply

effects more severe in the overseas country if the external value of sterling remained unchanged than if sterling were appreciated.

Conan points out that the continued strengthening of desires for monetary independence on the part of overseas Sterling Area members (begun with the establishment of central banks) runs counter to the present nature of the Sterling Area financial network. Of course, membership in the Sterling Area does not prevent altering the value of a currency relative to sterling. The very fact that members have done so (New Zealand in 1948, Pakistan in 1949, and Iceland in 1950) indicates that there are limits to the advantages of stable exchange rates, although it is true that members have been reluctant to change parities, choosing often to adopt controls—even on Sterling Area transactions—rather than vary the exchange rate. Intra-Area restrictions in the postwar period have been used much more extensively than Meyer indicates (p. 31), especially with respect to Far Eastern member countries.

Furthermore, the financial advantages of the Sterling Area system, such as they are, form only one of many factors which must be considered by overseas members, and they are advantages which could be enjoyed without full membership, as Egypt has shown since 1947. Meyer seems to think only in terms of two alternatives: full membership versus freely fluctuating, or in some cases variable, exchange rates. But a member could accept transferable account status and handle its own dollar reserves if it wished to, or it might achieve exchange rate stability by holding reserves in various countries including the United States, especially if, as is true in a number of cases, the United States is beginning to rival Britain as a trading partner. The ties which might enable Great Britain to extend its markets into the overseas Sterling Area are primarily members' interest in Britain as a source of capital, in Britain as a holder of balances which may be blocked, and in the Dollar Pool, and only secondarily the tie to the financial mechanism.

Meyer recognizes the Dollar Pool consideration, but he makes no attempt to analyze the drawings and contributions of individual members. The Dollar Pool *is* a tie for most independent members; in fact, most drew more from the Pool than they contributed between 1946 and 1952, the exceptions being South Africa (which does not directly contribute to the Pool but sells gold to Britain by agreement) and Ceylon. But Britain, without aid, has easily been the largest single user; its unaided dollar deficit plus that of some of the colonies have together exceeded by a substantial amount the net contributions of the few dollar-earning colonies, notably Malaya and West Africa. Thus, if American aid were sharply reduced or eliminated, the Pool might prove to have little attraction for independent members of the Area. The Ceylonese government has been desirous of, and partially successful in, maintaining its own dollar reserves. Australia and India both considered leaving the Dollar Pool arrangement when they were earning rather than drawing dollars in 1950.

Both the financial mechanism and the Dollar Pool are thus tenuous bonds for the overseas Sterling Area, clearly not the one-sided considerations that Meyer indicates. But the hold over members through control or potential control of capital outflow from Britain and through the possibility of blocking

and releasing the sterling balances has also been important. Meyer takes no note of either of these factors in considering possible British policy. He states that "The United Kingdom has never imposed any restrictions on the inward or outward flow of private sterling funds from and to the R. S. A. . . ." (p. 31). This is not true. Through control over capital issues, Britain has been able to govern borrowing from abroad on the London market, and this device was used in the gold agreement with South Africa in 1949. The potential restriction of capital outflow has always been present, and clearly Britain would be reluctant to send scarce capital funds to a country which chose to give up full membership for a transferable account status. But how important today is this traditional attraction for overseas countries? Conan shows in Chapter 4 that the prewar debtor-creditor relationships within the Sterling Area have changed markedly. Overseas countries have greater flexibility because interest and dividend payments to the United Kingdom have shrunk so considerably, and the existence of sterling balances has meant that dependence on Britain for new capital funds has diminished. Even when the balances are down to working minimums, it seems doubtful that the British can supply much of the capital which will be needed, and if this is so, member countries are bound to look elsewhere.

Elimination of "excess" balances (envisaged by 1956 for India, Pakistan, and Ceylon under the Colombo Plan) will remove the last ace Britain has had up her sleeve as a means of maintaining control over the Sterling Area. While Britain has been more than generous in releasing sterling balances, overseas members, especially India, have clearly recognized that pressure could be used if necessary along these lines, as is clear from accounts in the *Eastern Economist* and elsewhere.

The sparse reports on recent negotiations between Britain and the United States indicate that the British government has been reading between the lines of Conan's book rather than accepting Meyer's conclusions. Undoubtedly, the British have felt pressures from overseas members of the Sterling Area on the need for convertibility and some closer link to the dollar rather than a further turning inward such as Meyer proposes.

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Foreign Aid by the United States Government 1940-1951. Supplement to the *Survey of Current Business.* Prepared by the Clearing Office for Foreign Transactions, Office of Business Economics, U. S. Department of Commerce. (Washington: Supt. Docs. 1952. Pp. 118. $1.00.)

This volume brings together in comprehensive and convenient form the record of total United States government foreign economic aid over the eleven-year period from July 1940 to July 1951. More recent data on United States foreign aid since July 1951 are published in periodic articles of the *Survey of Current Business,* the last of which appeared in the March 1953 issue.

It is surely no exaggeration to say with the editors of this book that "the

foreign assistance rendered by the United States and described in this volume represents a series of programs unique in economic and political history." The total aid furnished to foreign countries (exclusive of our contributions to the Monetary Fund and the International Bank) over the eleven-year period aggregated 82 billion dollars, of which 49 billion dollars was provided during the war period. Reciprocal foreign aid to the United States offset a part of this total, so that the net aid extended to foreign countries by the United States government totaled 72 billion dollars.

If we add to these over-all figures the amounts of United States government aid extended from July 1951 to the close of 1952, the gross aid figure rises to 90.5 billion dollars and the net aid total is nearly 79 billion dollars. The net foreign aid extended by the United States government for all purposes since the close of the second World War through 1952 totals 38 billion dollars, only three billion dollars less than the net aid provided by the United States government to other countries during the five-year war period. It seems altogether likely that the 1953 figures will cause the totals of postwar foreign aid of the United States government to rise above the dollar total of our wartime lend-lease effort, once—not so very long ago—regarded as the all-time high of imaginative national effort in surmounting the limitations of conventional international finance.

The present volume is not intended to be an appraisal of the results of the tremendous and persistent efforts of the United States government to shape the course of international development over the last dozen years. Nor is it meant as a theoretical analysis of our international economic relations. Its purpose is, rather, to present and classify the voluminous and complicated facts in an orderly and systematic manner as a basis for theoretical speculation or policy formation. As such, it is indispensable for any thorough study of the rôle of the United States in world affairs.

The illustrated main text of the book emphasizes three aspects of our foreign aid. First, it explains the basic objectives of the different aid programs and the circumstances out of which they arose. Secondly, it describes the geographic distribution of aid by countries and main geographic areas; and finally, it presents an historical account annually and by periods of the magnitude of United States aid and the shifting emphasis from grants to credits and back to grants. This is followed by an appendix of statistical tables with full explanation of the concepts and definitions employed in the compilation of the data, and a legislative appendix summarizing the major legislation relating to foreign aid from 1940 to 1951. Most readers would probably agree that the facts presented here flow in such orderly and abundant profusion as to satisfy even the most vigorous intellectual appetites for some time to come.

Among the many data assembled in this volume this reviewer's eye was caught by Table H which shows total credits of nearly 12 billion dollars granted to and utilized by foreign governments in this period, of which between 10 and 11 billion dollars are still outstanding. These foreign debts had grown very rapidly in the years 1946-1948 prior to the beginning of the European recovery program, and continued to expand thereafter, though at a much slower rate. Table K projects the contractual debt service on this

foreign indebtedness through 1961, showing that amounts between 400 and 500 million dollars annually are scheduled to be paid to the United States by foreign governments in interest and repayment of principal on accumulated intergovernmental debts. These two tables may help to remind us—if any reminder is needed—that our balance of payments problems and the policies pertaining thereto are likely to be as important an item on the agendas of future international conferences as they have been in the recent past.

MAX GIDEONSE

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Banking and Foreign Trade. A series of lectures delivered at the Fifth International Banking Summer School, Oxford University, 1952. (London: Europa Publications Ltd. 1952. Pp. 256. 15 *s.*)

The postwar period has not exactly displayed a lack of writing on international economic problems. Faced with an avalanche of books and articles, the general economist will find the present volume a useful survey of the most important recent trends and policies in international economics. It can be assumed that this is what the book was designed for, and on this score it comes out well. A group of bankers, economists, and civil servants deal, each from his own viewpoint and philosophy, with some particular aspect of the total picture. The selection of speakers is on the whole good, although the caliber of the papers is uneven. This is perhaps unavoidable in a joint enterprise of this nature.

For the specialist in the field the volume has much less to offer. It does not reveal any new insights, and the papers which deal with policy questions express opinions which are on the whole familiar in the literature. For example, the reader will look in vain for new approaches to the pressing problems of discrimination and convertibility. The one exception is, in this reviewer's opinion, a highly interesting paper by R. F. Kahn in which he discusses the postwar monetary and commercial arrangements. His position is, briefly, that the nondiscriminatory elements in the Articles of Agreement of the International Monetary Fund are much less objectionable than the corresponding rules in the ITO Charter and GATT. But let me use his own concluding words: "When I offer, in perhaps patronizing fashion, a benevolent word in favour of convertibility, as laid down in the Articles of Agreement of the International Monetary Fund, I am only following Lord Keynes, who expressed himself in favour of the use of powers of negotiation and of bilateral arrangements about trade, but wanted to be sure that in the upshot anything which resulted from trade negotiations was made possible by suitable exchange arrangements. . . . What I am saying is that if we had enough trade discrimination, harmoniously and constructively administered, we might be able to introduce convertibility on current account." Whatever the merits of his case may be, it seems to represent an important kernel in current British thinking, and as such it calls for serious consideration.

SVEND LAURSEN

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Business Administration

Economic Replacement Policy. By ARMEN A. ALCHIAN. (Santa Monica, Calif: The RAND Corporation. 1952. pp. ix, 129.)

This study deals with the important problem of when to replace units of durable equipment by similar or improved units. Beginning with a formula which is correct in theory and when forecasts are accurate, it is the author's purpose to show that by computations which can be reduced to simplified form a correct replacement decision can be made. As the stream of income declines over time and possible alternate equipment becomes available, the replacement should take place when this stream of services can be secured at a lower cost or, in other words, when a new service is worth more than the increased cost. In his introductory chapter, Alchian defines these costs of providing this stream of service as related to the current value of the existing equipment, the net cost of switching to the new equipment, the cost of replacement at projected intervals, operating costs, and the operating costs of the series of future replacements. Replacement decisions will rest on the comparison of the present value of these costs with the discounted value of the service stream. Advantages and disadvantages must be compared in time and it becomes necessary to recognize the element of interest by a discounting process. This study takes pains to point out that the correctness of decisions depends on the accuracy of the data necessary for the forecasts.

The reader with mathematical facility will find in Chapter 3 a concise statement of the basic elements outlined in the introductory chapter. In short, the formulation begins with a notation of the variables and then sets out, by mathematical expressions in terms of present values, the various elements of costs (E), such as the cost of switching from existing machines to a new one or the costs of operating the present equipment. The value of the revenue or services of a machine (R) is also given expression in terms of present values. The next step, after all elements are set forth, is to give exponential forms to E and R. Thirdly, R and E are integrated in order to provide a simple and easy method of computation. For example, this process gives us six terms for cost (E_1, E_2, E_3, etc.) each of which is a product with a dollar coefficient. To afford a rapid computation these factor values are set out in the appendix. For example, to find factor IV it is necessary simply to turn to the table and read the number for the two variables and then apply the money value. Finally, there is a summation of these costs.

This study will be appraised by its readers on two entirely different levels. The first sort of appraisal will be made by a small group of theorists who are interested in replacement theory and are able to apply the techniques of advanced mathematics. The problem of replacement is really one of interest and investment. In order to see the relationship of this study, the average reader who is unfamiliar with the literature in this field might well begin with a review of parts of Irving Fisher's *The Theory of Interest.* J. S. Taylor appears to have been the first writer to set up an algebraic formula to show the determination of the life of a machine when unit cost and interest are at

a minimum.[1] Hotelling, Roos, Preinreich, and others have made modifications and new formulae to expand their treatment beyond cost comparisons. In an attempt to present an approach which would appeal to engineers and business men, George Terborgh brought out in 1949 his study under the title of *Dynamic Equipment Policy*.[2] One formula may be an improvement over its predecessor and concepts may be greatly expanded; at the same time, these mathematical theorists would agree that the replacement problem cannot be reduced to any final form simply solvable statistically. All predictions must be made on the basis of what will happen to the average machine. We cannot predict the kind of machines men may make. With psychological factors involved, it would be an extremely complicated procedure to introduce the factor of uncertainty into the formulation. Again, if wear and tear is the important factor of depreciation and production varies greatly in time periods, then a forecast of straight line depreciation is theoretically incorrect. It is extremely important to keep in mind that in these formulae we assume a constant price level and also no change in interest rates. If we believe that prices will decline, then replacement should take place somewhat later than indicated by the formula; if we believe interest rates will rise and capital will become more expensive, then there will be another factor favoring replacement. Decisions must also shift with the interest rate selected. Should we select a "pure" interest rate, a rate high enough to attract capital in the industry, or some other rate? In the absence of a reliable system of forecasting, no formula can give effect to the principle that cost and revenue factors should be measured in units of equal purchasing power instead of the customary dollar unit.[3] As we go into long periods of time, the compound interest process takes on great powers of growth and we see our data in the far away and dim shadows of discounted futurity. (At 6% the present value of one dollar in thirty years is thirty-one cents; in fifty years, it is only five cents.) Preinreich some years ago, apparently with a certain sense of futility, concluded one of his articles on this problem as follows: "I am not greatly impressed by the practical merits of the theory of economic life, although it is no doubt a fascinating subject, worthy of study for the sake of its legitimate place in economics."[4] Whatever other merits these theorists may find, Alchian appears to have made a contribution in his use of exponentials and his adaptation of the computation to electronic machines.

An appraisal on a second level will be made by business men, engineers, and accountants. As we attempt to apply the principles set forth to a particular problem or plant, certain limitations will become apparent. A possible saving through the purchase of new equipment is only one of the reasons for replacement as there might be a hazard connected with the machine causing

[1] G.A.D. Preinreich, "The Economic Life of Industrial Equipment." *Econometrica*, Jan. 1940, VIII, pp. 12-14.

[2] New York, 1949.

[3] The Rockefeller Foundation and the American Institute of Accountants, *The Changing Concepts of Business Income* (New York: Macmillan, 1952).

[4] *Op. cit.*, p. 39.

accidents and interruption of service. Does accurate data for forecasts, which the study emphasizes as fundamental, exist in every case? The central problem appears to be an inability to estimate revenue for particular items of equipment. What is the value of the services of a desk in an insurance office or the boiler of a public utility? Sales result from the combined services of many items of equipment and may also involve items of rent and monopoly elements. The fact that accountants do not as a rule accept the principle of charging interest on equity capital is not important for this analysis. It does, however, seem that such computations will have significance only when they are made for relatively short periods of time. Although this study should not be turned over to a clerk with a calculating machine, there is a real achievement in the reduction of a complicated problem to a simple and quick method of computation. Its value lies in the possibility that it presents for improvements over present rule-of-thumb methods. I do not believe that the business men who will test this study will become so involved in mathematical techniques that they will fail to rely upon independent judgment as well as the proposals in it as a guide to equipment replacement.

LAWRENCE R. CHENAULT

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Industrial Organization; Public Regulation of Business

Monopoly and Social Control. By HENRY A. WELLS. (Washington: Public Affairs Press. 1952. Pp. ix, 158. $3.25.)

Mr. Wells here essays a formidable task. He tries to analyze the American monopoly problem in terms of man's persistent attempts to modify and control his social and economic environment. Given Wells' brevity of treatment and choice of emphasis it is not surprising that his effort is largely unsuccessful.

Wells' analysis and prescriptions rest on several presuppositions. They may be summarized as follows: First, industrial concentration is continuously and rapidly increasing in the United States. In this he roughly follows the John Blair-Federal Trade Commission position recently questioned by Adelman, Lintner and Butters.[1] Second, concentration of industry is equivalent to or even underestimates the extent of monopoly about which he is concerned. Therefore, the rate at which monopoly is increasing is alarming. Third, monopoly is the chief cause of our economic maladjustments. To it may be attributed, among other things, both depression and inflation. The excision of monopoly would, then, remedy our chief economic defects. Fourth, the expansive phase of capitalism has ended, and the growth factors that served to divert public attention from the development of monopoly are now ex-

[1] M. A. Adelman, "The Measurement of Industrial Concentration," *Rev. Econ. Stat.*, Nov. 1951, XXXIII, 269-96; Corwin Edwards, George Stocking, Edwin George, and A. A. Berle, Jr., "Four Comments on 'The Measurement of Industrial Concentration'," *ibid.*, May 1952, XXXIV, 156-74; M. A. Adelman, "Rejoinder," *ibid.*, 174-78; John M. Blair, " 'The Measurement of Industrial Concentration': A Reply," *ibid.*, Nov. 1952, 343-55; M. A. Adelman, "Rejoinder," *ibid.*, 356-64; John Lintner and J. Keith Butters, "Further Rejoinder," *ibid.*, 364-67.

hausted. Fifth, the continuation of the trend to monopoly would undermine the American faith in free enterprise and political democracy.

Although these are not unfamiliar or perhaps even unpopular propositions, the validity of the first four of them, at least, is highly questionable. Upon these assumptions, whose validity he does not prove, Wells builds his analysis.

As Wells sees it, the central monopoly problem is whether a democracy can, without destroying itself, reverse the tendency of private monopoly to dominate the economic process. To solve that problem we should understand the general question of controlling man's environment. In addition, we should understand the American tradition of controlling the political and social environment, and how that tradition evolved. With these purposes in mind, Wells devotes some thirty pages to a truncated survey of political and social theory from Plato to Marx. He then turns to a brief inquiry into the nature and origins of the American pragmatic tradition. Wells concludes that certain environmental and ethnic factors have permitted in the United States a gradualistic and pragmatic approach to social and economic problems. He feels, however, that a failure to cope with the relentless growth of monopoly would cause a popular rejection of gradualism, and thus produce the contradictions and upheaval Marx predicts.

In Wells' judgment, our present plight is grave but not hopeless. He devotes the better part of 75 pages to a recital of the factors that make the task of antitrust as great as they are. First, the ownership and control of industry are already highly concentrated. And concentration (oligopoly) comes to the same thing as monopoly. Second, there is a lag between the growth of a social threat and an official and public awareness of it. Our institutional apparatus tends, therefore, to lag behind the development of those evils it is supposed to combat. Third, powerful monopolies are able to influence legislation to their own advantage. Fourth, even if appropriate antitrust legislation exists, big business can frustrate its application.

In spite of the enormity of the task facing antitrust agencies, Wells is hopeful. He takes heart in a new public awareness of the problem and in certain recent court decisions (including the Aluminum, Tobacco, Pullman, and Cement Institute cases) that make the task of winning antitrust cases somewhat less formidable.

Whatever one may feel about the need of an antitrust program, and this reviewer believes there is such a need, Wells' study is disappointing. He generally disposes of powerful counterarguments by ignoring rather than refuting them. He carefully explains why oligopolists behave like monopolists, yet disregards factors that may make them behave competitively. He turns his back on the dynamic forces that have in the past made American monopolies unstable, and denies the facts of American economic progress. He does not sufficiently consider the possibility that state-sponsored monopolies may be more dangerous than the private monopolies he abhors. He takes the questionable position that trade unions, the farm bloc, and other pressure groups are free of the unsavory motivations and evil consequences he sees in concentrated business.

From one who argues so strongly for a strengthening of antitrust we might

expect concrete suggestions. Wells, however, contributes practically nothing to the development of a workable antitrust program. The newcomer to economics will find in Wells' book much that is misleading and not much that is stimulating; students of monopoly and social control will find here little that is useful and less that is new.

Even if this book is judged as an attempt to popularize a dogma, it does not come off well. Wells' style is frequently opaque and usually discursive. The book is repetitious and disorganized.

Wendell Berge wrote the lucid but overenthusiastic introduction to the volume.

JOHN S. MCGEE

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Problems of Nationalized Industry. Edited by W. A. ROBSON. (New York: Oxford University Press. 1952. Pp. 390. $5.00.)

This study systematically interrogates the experience of industries and services nationalized by Britain's Labor government between 1945 and 1950. The first half consists of thirteen essays by different authors; six of these essays appeared previously in the *Political Quarterly,* April-June, 1950. In the second half, W. A. Robson, professor of public administration, University of London, synthesizes the various topics and states general conclusions.

The essays do not constitute case studies of particular nationalized industries. Instead, they have the merit of examining the major general issues relevant to most nationalized industries operated by public corporations: the basis of compensation, administrative organization, ministerial control and parliamentary responsibility, labor problems, joint consultation, the consumer's interest, public relations, price policy, financial efficiency, and scientific research. It is apparent that the political issues receive more attention than do the economic. The economic contributions are by Professors Gilbert Walker, G. D. H. Cole, W. A. Lewis, P. Sargant Florence, and Sir Arthur Salter.

Of the economic contributors, Professor Lewis on "Price Policy" and Sir Arthur Salter on the "Crux of Nationalization" provide a balanced combination—the former displaying optimism, the latter pessimism. Undismayed by all the qualifications raised in the many discussions of marginal cost pricing, Lewis proceeds directly to a promulgation of his rules (pp. 181, 190-91): "(1) It [the public corporation] should make neither a loss nor a profit after meeting all capital charges; and (2) the price it charges for different services should correspond to relative costs. . . . And if subsidies or taxes are to be levied, they should be levied only by instruction, should be shown separately in the accounts, and should be paid separately to or by the Exchequer. . . . If the different parts of the service compete with each other, relative prices must reflect (but not necessarily equal) relative marginal costs. And each part of the service should pay its own way, showing neither a profit nor a loss, except where the different parts share the same overhead costs; in this case each

must make a surplus, dependent upon its capacity to contribute to overhead costs."

Sir Arthur Salter, in contrast, is so concerned with three preliminary questions that he will have little to do with the planner's Nirvana: "How can the incentives of competition, with prospective profit or bankruptcy, which are found in private enterprise, be replaced? How can collective bargaining be adjusted to the different conditions of nationalized monopolies? And what safeguards can be found against the inherent tendency of bureaucracy to excessive centralization?"

The economic discussion is in many respects rather dated in the Lange-Lerner-Hayek days. To a considerable extent, one may feel that what would really be of interest in this field is a rewriting in terms of modern welfare economics of Pigou's earlier discussion of "Public Operation of Industries" in his *Economics of Welfare,* followed by an application of principles to the types of problems under review in this study. One especially misses more attention to some issues of marginal cost pricing as analyzed elsewhere by Crosland, Henderson, Little, and Wilson, among others. Some concern with problems of productive efficiency in state monopolies, as discussed elsewhere by Chester and Jewkes, would also have been relevant. It is at best not very satisfying, and at worst meaningless, to dismiss the latter problem merely by claiming that "statisticians are lagging behind the public need in evolving the statistical criteria necessary to determine performance" (p. 297). Even more significantly, investment policies of nationalized industries are neglected. This can not be separated from price policy and deserves attention. And finally, particular problems such as the intricacies of the road-rail and electricity-gas problems are unduly minimized. If, as is maintained, the public corporation is the "most important constitutional innovation which has been evolved in Great Britain during the past fifty years," then the concentration on administrative problems is welcome. Although the reviewer is not competent to evaluate the political contributions, nevertheless he must remark on the number of rather vacuous conclusions such as the following: "A successful balance between decentralization of management and central control of policy rests, in the last resort, on the establishment of harmonious relations between the persons concerned" (p. 90). Or, "My general conclusion on the whole subject (of the governing board of public corporations) is that it is of profound and fundamental importance that the prestige, status and dignity of these posts should be upheld and enhanced" (p. 107).

In general, the same economic problems which this work considers have already been discussed in the literature, in some instances more thoroughly. But students will find it convenient to have the problems bound between two hard covers, rather than scattered among journals and pamphlets. It is, however, regrettable that there has been a publication delay of almost two years for the treatment of materials only five years old. Problems of denationalization may now be just as topical.

G. M. Meier

Williams College

Economic Warfare. By Yuan-Li Wu. (New York: Prentice-Hall. 1952. Pp. xii, 403. $4.50.)

In this book Yuan-Li Wu makes a painstaking and conscientious attempt to develop a general theory and present an historical description of economic warfare, the emphasis being heavily on the former.

The seven chapters that follow the introduction present an over-all view of the numerous measures that, in principle, a nation at war can take to strengthen its own economy and weaken that of the enemy. Two chapters cover regulation of international buying and selling. Two others consider "Aggressive and Defensive Financial Controls and Operations," one dealing with foreign asset control, and the other with something called "Foreign Exchange Budgeting Special Exchange Procedures." Another analyzes the long-term economic penetration of a developed economy with which one is not at war. Two chapters, entitled "Economic Cooperation versus the New Colonialism," based largely on U.S. policy following the war, indicate ways in which a country can enhance its international position through conditional aid rather than coercion. Two others describe World War II measures taken by the British and Americans, and make interesting reading, but German countermeasures can only be inferred. Another, on "Economic Warfare Against a Hypothetical Enemy," distills some principles and considers some likely and unlikely alignments. One chapter deals with the aftermath of economic warfare. The final chapter comments on some actual and possible U.S. policies.

Mr. Wu is at his best wh n outlining the multiple effects—some favorable and some unfavorable—that stem from each act of economic warfare. In framing its wartime regulations over trade and finance, a government must always compromise in its relations with neutrals, because its own bargaining power is very seldom absolute. For example, it will usually be necessary to permit some re-exports through neutrals to the enemy, especially when both neutrals and the enemy are within the effective blockade.

One fact driven home by this work is that, in economic affairs, no neutral will ever be left alone by both belligerent powers. One or other will strive, with bribery and bullying as conditions dictate, to induce neutrals to restrict their exports to hostile powers and enter more wholly into the economic orbit of its own bloc. The means employed may be different for each country depending on a multitude of factors.

It is for this reason that a discussion of economic warfare should run in terms of specifics rather than generalities. How a neutral is to be treated depends on geography, the location and effectiveness of one's blockade, the goods and services the neutral needs, and the exact nature of the commodities to be diverted for the enemy. Does the neutral have a merchant marine dependent on the maintenance facilities of one of the belligerents? Does it normally use one of the warring powers as a banker for its international transactions? What are the political sympathies of each neutral government and people?

A serious defect of *Economic Warfare* is that it attempts to develop a general theory for a subject which does not lend itself to this treatment.

Consequently the text is desiccated and laborious. Each sentence is lucid enough, and the manner of presentation is eminently logical, but the effect of piling one theoretical interaction upon another, until some large abstract monument to deduction has been constructed, is deadening. The occasional footnotes giving some historical instances are the only relief experienced in some very tedious chapters.

For this reason too it is hard to say that this book, which could have been so timely, is particularly relevant to the cold war. True, the principles of economic warfare, developed at such great length, are pertinent enough. But one learns very little, the chapters on "Economic Cooperation versus the New Colonialism" notwithstanding, about the main issues that arise, or might arise, from a determined American and British attempt to influence European and Asiatic trade with the Soviet Union and its satellites. Here was an opportunity that was not adequately developed.

Perhaps one merit of the book is that very little has been written in this field since World War II, although various activities of the last war have been described. If colleges have courses in this subject, *Economic Warfare* should be considered as a text, although the students will find this rather exciting subject unexpectedly dull reading.

STEPHEN ENKE

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The Economics of Defense: A Primer of American Mobilization. By R. V. CLEMENCE. (Harrisburg, Pennsylvania: The Stackpole Company. 1953. Pp. 138.)

This book is intended to acquaint the reader having no previous knowledge of the subject with the basic problems faced by a mobilizing economy. The author points up the two major aspects of mobilizing for defense in a democratic nation. On the one hand, there is the problem of physical production. Manpower and other productive resources must be made available for defense purposes. On the other hand, there is the problem of preparing the citizens of a democracy for the added effort and the sacrifices which are necessary during an extended defense program. The author is primarily concerned with this latter aspect of mobilization. His main objective is to develop an analytical technique which can be used by the reader in evaluating the important policy decisions which must be made throughout a period of mobilization.

As Professor Clemens indicates, "to prepare a democracy for all-out war is a very different matter from similarly preparing a totalitarian dictatorship. . . . Mobilization in a dictatorship means telling people what to do, and making them do it" (p. 2). By contrast, in a democracy, the success of a defense program of indefinite duration depends primarily upon the voluntary cooperation of the various groups within the private sector of the economy; and a familiarity with the basic problems involved will promote more ready acceptance of the program by these groups.

The author has devoted individual chapters to a description of the peace-

time, wartime, and defense economies. The analysis in these chapters is directly related to a series of circular flow diagrams or models which present the real income and the money income relationships between the household, business, and government sectors of the economy. These models effectively illustrate the manner in which money and income flow vary between these sectors as the transition is made from a peacetime to either a defense or a wartime economy. Separate chapters consider two important phases of a mobilization program, namely, the shifting of resources to the defense area of production and the problem of inflation control. Final chapters present an analysis of indirect and direct controls and their rôle in a defense economy.

Perhaps the greatest single merit of this book is its simplicity. No attempt is made to define either the precise composition or the exact size of national output during the period of defense production. The general approach is less detailed and less technical than other works on the subject which have appeared within the past several years. The book is intended to be a primer on the economics of defense. Other more technical treatments are recommended as a sequel.

Mobilizing for defense and war has been a recurring problem in recent years. Few basic economics textbooks, however, give a fully integrated treatment of the subject. Yet the student should be familiar with, and should be able to evaluate critically, the various economic policy decisions which must be made during an extended period of defense production. A careful study of Clemens' "primer" will provide the reader with the analytical tools to better understand the economic implications of these policy decisions. The book is highly recommended for supplementary reading at the elementary level.

GERHARD N. ROSTVOLD

Pomona College

Public Utilities; Transportation; Communication

The Pacific Coast Maritime Shipping Industry, 1930-1948. Vol. 1, *An Economic Profile.* By WYTZE GORTER and GEORGE H. HILDEBRAND. (Berkeley and Los Angeles: Univ. of California Press. 1952. Pp. xiii, 118. $2.50.)

This is the first of two volumes dealing with the measurement and analysis of the economic performance of the Pacific Coast maritime shipping industry, defined in the opening chapter to include those functionaries which "move waterborne cargo and passengers[1] through ports of the Pacific Coast States in the foreign, intercoastal, coastwise, and non-contiguous trades."

The authors have specifically limited themselves in Volume I to the construction and very limited interpretation of statistical series relating to three

[1] The analysis is confined, however, to cargo movements on the ground that passenger traffic is not significant.

measures of performance: cargo tonnage, as an indicator of output; vessel arrivals, as a measure of service offered; and employment, as a measure of both employment opportunities and the degree of utilization of the rather immobile labor force associated with the industry: the choice being determined in part by the availability of data. The "economic profile" presented by these series is discussed in general terms in the second chapter and more specifically in the two following, but in each instance explanations of and inferences from the data are limited to a defense of the general thesis that the industry was declining, in absolute terms and relative to those of the Gulf and Atlantic Coast ports, throughout the period 1930-1948 except under the stimulus of war. A useful and methodical summary of the problems of data collection and their resolution and the tabular summaries referred to in the text are presented separately in appendices for clarity of exposition.

The organization and presentation of industry studies is, of course, a matter of individual preference, and the well-ordered development of this little book bears out the authors' contention that a very considerable task of data assembly and reconciliation was necessary before any meaningful analysis of causal factors could be undertaken. It is not entirely clear, however, that this fact alone warrants the separate publication of Volume I. The nontechnical reader will find it difficult to apprehend its significance in the absence of a selective description of the nature and recent evolution of the peculiar market environment in which the industry operates; and the professional in the field can hardly assess the adequacy of the measures employed or the validity of the conclusions with respect to the industry's postwar status without a more explicit statement of the coverage and technique of the causal analysis to follow.

In a similar vein, it is to be hoped that the authors' concluding statement that the central theme of the problems to be dealt with in that analysis concerns the concepts of supply and demand implies a broad reading of those terms: *i.e.*, an inclusive examination of the complex political, legal, and sociological relationships which underlie economic behavior on the Pacific Coast waterfront, and of their vital significance to the development—from among a broad range of alternatives—of short- and long-run policies of employer and union groups. The politics of regulation and of trade policy, the ideology behind the drastic revision of waterfront labor organization, and the personal rivalries of the era are difficult to fit neatly into curvilinear analysis, but they are a vital part of the framework within which economic behavior was determined in that turbulent period.

An adequate appraisal of the usefulness of this first volume must, therefore, await the second. Within the limits specified, however, it represents a scholarly and unusually well-ordered summary of one line of attack on the common problem of virtually all industry analysis: the preparation of meaningful measures of economic performance from scattered data of uneven coverage intended for a variety of purposes.

JAMES A. CRUTCHFIELD

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Land Economics; Agricultural Economics; Economic Geography

Resource Conservation: Economics and Policies. By S. V. CIRIACY-WANTRUP. (Berkeley: University of California Press. 1952. Pp. x, 395. $6.50.)

The title of this book suggests an ambitious effort and the flyleaf confirms this. Some fourteen years of research by the author, with assistance of such groups as the Social Science Research Council and the Guggenheim Foundation, lie behind this work.

The general organization of the book is an appealing one, being logical and systematic, something not often attained in a work dealing with such an amorphous field. A review of the emergence of the problem of conservation is followed first by a classification of types of resources and then a consideration of the meaning of the term conservation. The next two sections, which occupy some forty per cent of the book, analyze the rôle of the private planning agent in the economics of conservation. Not only are the effects of decisions based upon economic motivation studied, but the institutional influences which operate upon the private planning agent to speed or retard resource use are given extensive consideration.

It is the author's view that what he calls the "optimum state of conservation" in private economics serves as a "construct" about which the forces of economic motivation and institutional influence may be grouped and analyzed. To this end the "optimum" is viewed *ex ante* to enable the economist to study the effects on conservation resulting from the motives and conscious objectives of the planning agent. The "optimum" seen *ex post* is an historical notion which it is felt will be helpful in the appraisal of "habit patterns." This latter term is used to include behavior learned through repetition and imitation rather than by conscious understanding. Having established his "constructs" Ciriacy-Wantrup gives extended treatment to the manner in which the planning agent reacts to or is acted upon by such economic and/or legal influences as: the rate of interest, time preference, income, uncertainty, prices, some aspects of property, credit, taxation, market form, and economic instability. A number of subtle relationships of varied degrees of importance are uncovered.

The final two sections are concerned with the objective, criterion, and implementation of conservation policy for society. With the society, as with the private planner, the objective is an "optimum state of conservation" but in terms of social rather than private economics. Practically, it is recognized that the theoretical "optimums," both private and social, cannot be attained in reality. In most circumstances the practical goal of conservation policy is held to be a step-by-step improvement in the existing state of conservation.

A unique but important case requires further readjustment in policy goals. This is the case of those resources which are ordinarily renewable but which have a critical zone of utilization beyond which depletion becomes irreversible within the realm of economic feasibility. Perhaps the best single illustration of such a resource is soil. The danger resulting from this irreversibility is that it may entail what are called "immoderate losses"—those which may threaten the survival of the community. Such immoderate losses to society are in terms

of narrowing the resource base of the economy and consequently reducing its adaptability and its opportunities for development. Certain social growth is stifled, some other is distorted; social collapse may result if the resource base is continually narrowed.

Irreversibility does not always result from depletion of these resources. However, it is a possibility which a society cannot afford to risk. As a safeguard against this contingency, Ciriacy-Wantrup develops the notion of a "safe minimum standard" to serve as the practical approximation of the optimum state of conservation for society. This "standard" is defined "in terms of conservation practices designed to avoid the critical zone." Since irreversibility is not, for these resources, the certain consequence of depletion, there is a social cost involved in maintaining the safe minimum standard. The cost may be viewed as an insurance premium against social stagnation and inflexibility.

This theory and the concepts developed in it are, perhaps, the most important single contribution of the book. Not only does it serve as a guide for much of the subsequent policy consideration, but it indicates that one group of resources has both special qualities and a strategic economic position, conditions which are a *sine qua non* for special conservation treatment.

Following this analysis, various means of implementing conservation policy are given consideration. This section concerns itself largely with those tools specifically designed for conservation (direct tools), the more general economic forces which may be used having been studied in the section on the private economics of conservation. Although developing in part from the theory just mentioned, it is of minor analytical interest, being in the nature of a thorough survey of the direct tools. This section is less imaginative than earlier parts of the book.

One aspect of the over-all analysis requires comment. The author's definition of conservation is given as the redistribution of use of a resource "in the direction of the future" (p. 51). Following this it is somewhat startling to find (p. 77) the definition of the optimum state of conservation for the private planning agent "as that time distribution of use rates that maximizes the present value of the flow of (expected) net revenues," and a similar definition (p. 230) of the optimum state of conservation for social policy in terms of maximizing "social net revenues over time."

In developing these optimum concepts the author has made the decisive and determining factor *value*, an element which is notably absent from his definition of conservation. In view of this latter fact, it is not apparent *how*, nor for that matter *why*, the maximization of present value (to either the private planner or society) should be at the same time uniquely the optimum state *of conservation*. The analysis shows no connection between value and conservation and certainly the definition given for conservation does not.

In moving from one criterion of conservation (time) to another (value) the analysis avoids the thorny problems associated with explaining resource valuation. Yet this is a fundamental aspect of any theory of conservation, for unless there is something singular about a resource by reason of which society cannot afford to value it as ordinary economic goods are valued in the market,

special conservation treatment—as distinguished from ordinary economizing —is irrelevant. The penalty this book pays for side-stepping the valuation problem is a loss of some degree of unity of topic and a certain loss of urgency of purpose. One is left with a feeling that the main battle about conservation was over before he picked up the book.

Another less significant observation is worth mentioning. Although the book makes some attempt to consider nonrenewable (stock) resources, its specific coverage of them is slight and the "general" conservation analysis is often too narrow to consider important factors related to their conservation. For example, total ultimate recovery of these resources is assumed at several points in the book to be a fixed stock which is insensitive to price. In fact, both current supply and ultimate recovery of such resources are characteristically functions of price.

Despite these drawbacks the work indicates many new tools for use in conservation policy and the manner in which they affect conservation decisions. The work of the author also results in the development of several new theories explaining resource characteristics and the effect of those characteristics on society. For these reasons the reviewer feels that the work is a distinct contribution to the literature on the economics of conservation.

JOHN C. MURDOCK

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Agricultural Prices. By FREDERICK LUNDY THOMSEN and RICHARD JAY FOOTE. 2nd ed. (New York: McGraw-Hill. 1952. Pp. ix, 509. $6.50.)

There are now three good textbooks on the subject of agricultural prices. F. L. Thomsen, the senior author of the text under review, pioneered in this field with his first edition of *Agricultural Prices* in 1937. The second edition, substantially revised, now competes, however, with Shepherd's *Agricultural Price Analysis* (1947) and Waite and Trelogan's *Agricultural Market Prices* (1951).

The new text is an improvement upon the original. Most chapters have been rewritten and up-to-date material has been included. Part I deals with Price Determination and Discovery, with specific reference to agricultural prices on the wholesale and retail level. This is first a simple presentation of price theory under conditions of perfect and imperfect markets and includes a brief discussion of aggregative price determinants in addition to the conventional demand and supply analysis. Furthermore it describes and analyzes the general behavior of prices over shorter and longer periods of time. Chapter 9 deals with the relation between cash and future prices and has been taken over almost unchanged from the first edition; it still remains a good description of the rôle which the future market plays, or is assumed to play, in agricultural marketing. Chapter 12 describes various price programs of the federal government which have become "one of the most important factors affecting commodity prices." The programs are largely appraised in the light of theoretical considerations of the free market model. Part II is devoted to the problem of handling price data for statistical analyses, for price forecasting and outlook reports. It serves as an introduction to techniques of manipu-

lating price data and of price analyses, such as index numbers, correlation analyses and long-run and short-run price variations. If used in undergraduate classes, these chapters would necessitate spending some time on statistics, in the absence of previous training in that field. Agricultural extension economists and county agents might find valuable material in the chapters dealing with the methods and difficulties of making price forecasts and outlook reports. In Part III, individual commodities and their prices are dealt with in some detail, such as hogs, beef, dairy products, cotton and wool. For each commodity the major demand, supply and other factors which determine prices are explained, and price behavior and analyses are described.

The main value of the book is that it furnishes further detailed material to enable students and others to understand the nature of price problems and price analysis—an understanding which is necessary for explaining and predicting prices, as well as for controlling them.

For those that like to have their economics shot straight from the hip, this book will be very satisfactory. The manner in which the various price problems have been integrated into a structure for which equilibrium theory serves as a basis commands respect. Examination of price problems, such as those encountered in connection with government price programs, is straightforward and technically well presented with a few minor exceptions. For instance, it would have been preferable if Figure 32 (p. 213) relating to the storage problems and showing hypothetical total return curves under conditions of "inelastic demand," had been drawn so as not to leave the impression that the entire range of the demand curve was inelastic.

The appraisal of government price programs by the authors suffers from occasional moralizing which could affect some readers or students in a manner entirely opposite to the one intended. It is one thing to explain and analyze the "forces interfering with the operation of a free economy" in the light of rigorous economics, but another to imply that those that challenge the conclusions of "sound" economics are necessarily "misguided."

One of the conclusions reached by the authors is that "with certain exceptions . . . retail food prices are determined largely under conditions of pure competition," while marketing margins, *i.e.*, prices received by marketing agencies for the service they perform are "rarely determined under conditions of pure competition" (p. 97). For this statement, there is however little evidence in the text. It seems somewhat contradictory in the light of the various types of imperfect competition—enumerated on the following pages—which we find at all levels of trade. Also, the chapter on pricing under imperfect competition fails to bring out pricing problems under monopsonistic situations, which exist in the case of many agricultural commodities on the farm level.

Agricultural Prices, besides being an appropriate text for a special course in that field, is useful as complementary reading material for those that use textbooks in marketing which do not emphasize economic theory in relation to marketing problems (including F. L. Thomsen's *Agricultural Marketing*). For general economists, its value lies mainly in the application of economic theory to the analysis of policy problems.

ERNEST FEDER

South Dakota State College

Labor

Wages Policy under Full Employment. By E. LUNDBERG, R. MEIDNER, G. REHN and K. WICKMAN. Edited and translated by RALPH TURVEY. (London: Wm. Hodge & Co. Ltd. 1952. Pp. viii, 88. $1.)

This is a collection of short essays by four Swedish economists on how to manipulate wages so as to permit the reconciliation of full employment with the prevention of inflation. Of the four only Lundberg, by virtue of his *Economics of Expansion* (London, 1937), will be familiar to American readers. Meidner[1] and Rehn are employed by the Swedish central labor organization, but are (or have been) associated with the Stockholm Business Cycle Research Institute, of which Lundberg is chief. Wickman, who has also worked at this institute, is identified, in the editor's two-page foreword, only as "a specialist in welfare economics."

The essays in question were originally published in Swedish; some in the Social Democratic monthly *Tiden* and the others in the professional (economic) journal *Ekonomisk Tidskrift,* between 1948 and 1950. Lundberg opens the book with a brief general discussion of the issues of wage level policy, and this is followed by Meidner's paper, "The Dilemma of Wages Policy under Full Employment." The bulk of the volume consists of Rehn's paper, "The Problem of Stability: An Analysis and Some Proposals"; a critique thereof by Lundberg and a rejoinder by Rehn. Wickman's very short essay concludes the volume.

It seems fairly clear from the discussion that Lundberg's general position is (by American standards) that of a moderate conservative. His critique of Rehn's proposals (designed to prevent inflation without sacrificing full employment) is marked by concern lest resources be misallocated; lest there be "insufficient risk-taking"; lest the "transfer [of] a large part of private saving to the State" involve an undesirable concentration of economic power; etc. He also argues that "it is very possible that some degrees less of full employment, secured by a restrictive credit policy and without price increases, might be more effective in stabilizing wages than increasing prices by indirect taxes."

The other contributors are all Social Democrats; however, their views imply differences of opinion on the correct wage policy to be recommended to the labor movement. Meidner's view, for example, is not too far removed from Lundberg's; he asserts that it is "excess monetary demand which is the real cause of over-payment, affecting both wages and prices." And his solution is to eliminate the "excess monetary demand." He does not state just how much unemployment he would accept in exchange for such elimination, but does indicate repugnance for "a relapse into a society of the insecure pre-war type." Although Meidner does not offer any guidance in how to get "full employment without inflation," his argument is an interesting Swedish expression of a desire to preserve the independence of unions from even a govern-

[1] Rudolf Meidner is the principal economist of the Swedish Labor Federation while Gosta Rehn is a member of his staff.

ment controlled by their allies. He believes that unionism's primary function is the determination of wages through collective bargaining and that failure to exercise this function by *individual* unions would cause "the members' desire for an interest in the organization [to] lag." Hence he disparages any notion of a centrally determined wage policy[2] and rejects the idea that unions should be "responsible" or "reasonable." The vehemence of his position may be surmised from the following: "There is no organization whose very existence is threatened to the same degree by this excess demand as is the trade union movement which must maintain its dominant position in the wage-formation process if it wants to survive."

Meidner's position is essentially that of the Trade Union leaders, anxious to preserve their independence of the government even when it is dominated by the Social Democrats. Rehn, however, is more willing to take the risks of living with Leviathan. Like Meidner, he believes that the unions cannot, for long, act to hold down wages in the presence of excess labor demand without losing their principal *raison d'être* (and membership). But while Meidner does not specify how he would eliminate excess demand, Rehn has an explicit proposal. He argues that full employment, under existing institutional arrangements, generates (unduly) "high profits," which in turn generates the excess demand for labor which (unions or no) puts upward pressure on wages. The crucial link in the chain between full employment and inflationary wage increases is high profits; and it is this link which Rehn proposes to break by a system of *indirect* taxes levied on "gross production" rather than profits. (Direct taxes are rejected because of their adverse effect on incentives.) Government revenues and expenditures are to be balanced at full employment equilibrium; part of the receipts, however, are to be earmarked for investment purposes and these receipts would be invested or sterilized as the exigencies of the situation required. Underemployment would be combatted by using the investment funds to give jobs to the idle and/or to subsidize certain firms incurring losses; inflation would be fought by sterilizing part or all of the revenues earmarked for investment. But in order to curb effectively both inflation and unemployment, the state "must be able to determine and direct the use of an increased share of the total National Income."

In short, Rehn proposes to transfer a part of profits to the state via indirect taxes. The new full employment equilibrium will involve smaller private, and larger public, investment than heretofore. Absence of high profits will, according to Rehn, remove the excess demand for labor that generates wage increases. But what if unions demand "excessive" wage increases anyway,

[2] This impression of Meidner's position is based on his essay as printed in the book. However, through Professor Walter Galenson, I have seen a mimeographed form of this paper (in English). The translation is virtually identical with Turvey's except that in Turvey's version certain important sentences are omitted from the next to last paragraph (p. 28). They include the following remark: "the trade union part of it has to be consolidated—by a further levelling of ungrounded wage differences, by intensified instruction and by a planned agreement policy, which would not exactly mean centralized actions for increased wages but central influence on the claims of the different unions." This remark quite alters Meidner's position as expressed in the book (making it much closer to Rehn's); it would be interesting to know why it was deleted.

relying on the implicit guarantee of full employment to save their members from unemployment? To circumvent this difficulty Rehn proposes a "centrally planned wage policy—on which the trades union movement can reasonably be asked to take responsibility." Such a policy implies that "the central body must support reasonable wage claims and check the less reasonable ones"; this wage policy will aim at equity among different groups of wage earners rather than encouraging each to bargain for all it is able to take. One consequence of this wage policy would be to narrow (interindustry) wage differentials. Rehn would permit small interindustry differentials to exist as a spur to the transfer of labor from less to more profitable industries; however, he does not think that such differentials (or those now existing) are a sufficient incentive for the optimal degree of mobility, and he therefore proposes government financed bounties (administered by labor exchanges) to induce workers to move into certain designated expanding industries.

One obvious difficulty with Rehn's program relates to his assumption that unions will refrain from demanding "inflationary" wage increases in the presence of full employment if there is a transfer of "excess" business profits to the Treasury via indirect taxes. Both Lundberg's critique and Wickman's essay express doubts on this matter, doubts shared by the reviewer. A second difficulty, also noted by Lundberg, is our ignorance of how much government investment (or subsidies) would be required to maintain full employment under Rehn's scheme. The amount could vary enormously depending upon business response to the initiation of the plan. Rehn's rebuttal to these arguments is not, in my opinion, satisfactory: despite the admirable restraint of the Swedish unions in recent years, it is at least debatable that, even in Sweden, this could continue indefinitely. In any event, the matter requires more discussion than Rehn devotes to it. The second difficulty is not really considered at all; at bottom, I suspect, Rehn is not overly worried about "too much" government investment.

On the other hand, Lundberg's position is not a happy one: to argue for credit restriction and "some degrees less of full employment" is to invite Rehn's retort, "less than what?" The cost of price stability in terms of unemployment is simply not known. Rehn's rebuttal further argues that, while his own proposal may not be perfect, it is superior to the mixture of direct controls and exhortation that has characterized much of postwar wage policy in Sweden and elsewhere. And it is not clear that Lundberg would not choose Rehn's proposal rather than continue existing policies. Lundberg's *attitude* is clear; he would like somewhat more stress on curbing inflation and somewhat less on maintaining full employment, but it is by no means easy to translate this *attitude* into a positive *program*.

By and large, these essays are well worth the attention of students of wage policy. They do not take us very far beyond the discussions of English-speaking economists, but there are certain differences of emphasis that justify a reading. It is unfortunate that the editor did not provide an introductory essay on the political and economic situation that gave rise to the debate and a description of the relevant Swedish institutions. It is only inferentially that

the phenomenon of the "wage stops" (freezes) in Sweden enter the discussion; yet these are basic to any understanding of the practical bearing of the argument. Again, the background of the "solidaristic" wage policy that has (over the past two decades) narrowed wage differentials, and upon whose acceptance Rehn's proposal rests, is not considered. An explanation of such phenomena as these would have added greatly to the value of the book. But beggars cannot be choosers and, as it is, Turvey has left us in his debt.

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Sidney Hillman, Statesman of Labor. By Matthew Josephson. (New York: Doubleday and Co. 1952. Pp. 701. $5.00.)

Matthew Josephson's biography of Sidney Hillman could hardly fail to be an interesting and absorbing study. The man, the union he represented, their joint rôle in the growth of the American labor movement, are such vital parts of our recent history that attention is inevitably drawn to what Josephson has to say. But oddly enough, although one's interest is maintained throughout the study, this reader was left disappointed. Despite Josephson's generally recognized skill as a writer, the personality of Hillman fails to emerge in convincing fashion. We are told repeatedly that Hillman was a great labor leader and statesman, but still the reader is left with the feeling that adequate demonstration is lacking. After nearly 700 pages of text Hillman remains a largely unknown character—Josephson's adulation notwithstanding. It is hard to account for this failure. Although Hillman left few personal records, a considerable number of people who knew him well (including his wife) were available to the biographer. Many, indeed, are quoted in their appraisal of Hillman—with some bias towards those who admired him most—while less attention is paid to Hillman's critics, most notably David Dubinsky.

The biography follows a rather straightforward chronological pattern starting with a brief account of Hillman's youth in Russia where he participated in the revolutionary movement. His changeover from a revolutionary to a moderate trade union leader after his immigration in 1907 is certainly not adequately explained by Josephson. The best told parts of the story cover the turbulent years from 1910 when Hillman first joined the United Garment Workers Union, after working for a relatively short time as a cutter in Chicago, until 1914 when, at the age of 27, he became president of the new Amalgamated Clothing Workers Union. But even this part of the history cannot be accepted uncritically. One of the great difficulties faced by a biographer is to resist the temptation to let the hero steal the show. Josephson does not entirely succeed. So in the early years the parts played by such workers as Joseph Schlossberg, Hyman Blumberg, August Bellanca and Bessie Abramowitz (later Mrs. Hillman) receive a smaller share of the spot-light then they deserve. And some will question whether Hillman would have risen to the leadership of the union without the active sponsorship of such off-scene workers as the arbitrator John E. Williams, the social worker Jane Addams and the lawyer Clarence Darrow. Similarly, in the later period, as during the

formation of the CIO, the rôle of John L. Lewis is certainly underplayed.

For the economist the omissions that will be most noticed concern the changing economic status of the clothing workers. Since World War I, the Amalgamated Clothing Workers Union in varying degree has exercised considerable influence, through unionization, in the men's outerwear industry. There is no attempt made by Josephson to follow up in any systematic fashion the consequences of unionization in such important areas as wages, employment or migration of the industry. Much attention is paid to strikes and to the extention of union control and mention is made of the union's efforts to aid the industry along the lines of "scientific management." But in fact the reader will learn more about such fringe issues as the Amalgamated Bank and cooperative housing sponsored by the ACWU than he will about what actually happened to the workers in the industry. To cite one example, in 1923 about 63 per cent of all employment in the men's outerwear industry in the United States was found in six cities, where the union had its greatest control (although the degree of unionization was not equal in all these cities). By 1937 the comparable figure had fallen to 49 per cent, a decline of 14 percentage points. In Chicago alone, the original stronghold of the union, the employment percentage fell from 18 to 8 per cent of the national total between 1923 and 1937. Josephson makes no attempt to set forth these important developments, which are well known and uncontested facts; and consequently he fails to probe into some of the most vital problems of the industry which fostered Sidney Hillman and which was, in turn, molded in a significant fashion by him.

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AFL Attitudes Toward Production, 1900-1932. By JEAN TREPP MCKELVEY. Cornell Studies in Industrial and Labor Relations. Vol. II. (Ithaca: Cornell Univ. Press. 1952. Pp. ix, 148.)

This volume represents the interpretative part of a doctoral dissertation on union-management cooperation written by the author two decades ago at Radcliffe College. The dissertation material describing actual cases of cooperation, since then covered by other writers, has been omitted from the publication.

Professor McKelvey's interpretation of the development of a "cooperating philosophy" by the American Federation of Labor during the period in question is essentially this: The weakness of the labor movement, stemming from various socio-economic conditions, prompted union initiation of cooperating ventures as a technique for the survival and growth of trade-unionism. In her own words:

> . . . the difficulties involved both in overcoming the apathy of the workers and in forcing recognition from employers suggested that the easier road to organization lay in selling the union to employers by persuading them that their own self interest could best be promoted through union recognition, that the trade union alone, in contradistinction to the com-

> pany union or other forms of employee representation, could supply the broad basis of confidence necessary to release the full productive energies of the workers (p. 119).

But this cooperating "philosophy" did not emerge automatically. Quite the contrary,

> . . . leadership is necessary to analyze a new industrial situation and to formulate a program for dealing with it. Leadership is also essential in educating the rank and file to acceptance of policies which involve a departure from long established procedures. So far as the AFL is concerned, there is little doubt that William Green was the person chiefly responsible for its support of union-management cooperation (p. 120).

The author emphasizes, however, that the cooperating technique failed to attain the objectives of organized labor.

Union-management cooperation designed to increase productivity—which is the sense in which the author uses the term—is characterized (among other things) by a spotty growth pattern: At any given time it will exist in some bargaining units (or subdivisions thereof) and not in others; and it does not continue indefinitely in those units where it emerges. Given this fact, it is neither realistically constructive nor analytically accurate to deal with the problem of cooperation by pitching the approach at the level of the entire economy and focusing on federation leadership, as did Professor McKelvey. Instead, the investigation must be oriented toward the particular business units where the cooperating ventures are being tried and toward the labor leadership relevant to those units. In some instances this may mean focusing on the "philosophy" of an obscure local official, in others on a national labor figure, in still others on a regional director, etc. And such a research dictate is reinforced by the fact that the component national unions of the AFL are nigh-perfect autonomous bodies when it comes to elaborating and executing collective bargaining policies. Nor should one fail to note that within many of these nationals, some or all of the locals themselves have a great deal of autonomy where job problems are concerned.

All this is not to imply, of course, that the "philosophy" of the AFL leadership is of absolutely no importance for the success or failure of union-management cooperation experiments, either during the period studied by the author or a different time span. But compared to the other forces impinging on the national, and particularly the local, union officials in America, the impact of so-called Federation viewpoints and attitudes is relatively negligible.

This reviewer is not asserting that by any stretch of the imagination is adequate local or national union leadership enough for the successful emergence and continuation of union-management cooperation plans. There are various other conditions that must be fulfilled. But to ascertain *concretely and operationally* what these conditions are, the researcher must concentrate his investigations on the relevant business units. That again points up the fact that to deal with the cooperation problem at the level of the entire economy, which the author has done in this volume, is of relatively little practical value. It may well be, of course, that in her doctoral dissertation she did make

exhaustive case studies of the particular plans that were initiated during the 'twenties. But if so, her analysis and interpretation in this volume should have focused on these particularities.

This reviewer has evaluated the study from the vantage point of a "pragmatist" (in the philosophical sense). That in no way, however, implies a similar evaluation of Professor McKelvey's effort in the light of other criteria. For instance, as a chapter on the "intellectual" development of certain segments of the AFL leadership during the 'twenties, this monograph might well prove a noteworthy document. And the reader should also keep in mind that the study was completed twenty years ago, when the techniques and insights now commonplace were unavailable.

JOSEPH SHISTER

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The Organizability of Farm Labor in the United States. By ALEXANDER MORIN. (Cambridge: Harvard University Press. 1952. Pp. 102. 50 c.)

For many years the problems and difficulties of organizing field workers in agriculture have been known. But the author is perfectly right when he states that "there has been little or no systematic analysis of the specific problem of the organizability of the farm wage worker. " To fill this void is the object of this monograph.

The central observations of the study may be summarized as follows: the problem of union organization in agriculture, as compared with industry, is more complex than are suggested by the purely economic and operational factors of organizability; in contrast to industry, the psychological barriers to successful unionism in agriculture (farm worker identification "with farm-owning or with non-agricultural groups") are more formidable; the hope of escaping from wage employment in agriculture overrides the typical worker's concern about conditions on the job, and hence "the remedial efforts of farm worker trade unions" are of secondary importance; and joining a union of his fellow farm workers is not the path pointing to his long-term aspirations.

A glance into the past makes it difficult to confute these observations. And a look at the present does not raise doubts as to their general validity, but it does raise the question: How really crucial or significant are these difficulties when it comes to organizing hired farm workers into stable unions? Although it is true, as Mr. Morin states, that "a recognition of permanence in farm work will contribute to future organizing campaigns," too much may be made of this point. What must not be lost sight of is the fact that at least two million workers try to make a living mostly from wage employment in agriculture every year. And this suggests a sizeable gross organizable potential for many years to come. With organizational perspectives trained on the short rather than on the long occupational horizons of agricultural hired workers, it is conceivable that appropriate techniques can be devised to meet the organizational problem of excessive occupational turnover among these workers.

As for the economic and operational factors affecting union organization in

agriculture, none is more important than the character of the farm labor market itself. In this respect, Morin does a very creditable job, particularly in describing the labor supply aspects of this market. Because easy entrance into seasonal farm work tends to undermine the employment opportunities of those workers more or less permanently attached to agriculture, it is both a principal incentive and a major difficulty in their organization. Not mentioned, however, is that one of the most important factors in preventing unionization of large-scale agriculture in the Southwest, for example, is the current legal and illegal employment of Mexican nationals.

At one point Morin states that "dispersion [of employment] is no doubt one of the principal reasons for the failure of hired farm workers to organize into unions." This largely begs the question. Union policies and practices have not embraced the nation as a whole, but only those areas characterized by employment of comparatively large numbers of workers per farm establishment. One wonders whether, in the final analysis, the psychological and operational problems associated with organizing farm laborers are so tough or so unique that they could not be overcome by a resourceful and determined leadership having a budget of, say, one-half million dollars a year for a minimum of five years for organizational work in the most concentrated areas of farm employment. There is no question but that this budget would have to be underwritten largely by unions operating in urban or semi-urban occupations.

Although this study has the limitations to be expected of any first effort at a systematic analysis of the problem, it is a contribution to the understanding of why the last major unorganized sector of our economy has not been unionized.

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Population; Social Welfare and Living Standards

Consumer Problems. By Aach W. Troelstrup. (New York: McGraw-Hill. 1952. Pp. xv, 458. $4.75.)

This book is intended to be a practical aid for people setting up housekeeping. It is doubtful that Professor Troelstrup intended the book to add anything new to the science of economics or to sociology. The foreword states that the book was developed in a consumer problems course at Stephens College.

There are many students, however, who either are, or think they are, too sophisticated for the style of this book. Students at a large urban university, for example, may consider that it has been "written down" to them. At some colleges elementary economics is a prerequisite for the consumer economics course and this book is not advanced enough for such a course.

Consumer Problems cannot be classified as a book in the economics of

consumption, or family finance, or marriage and the family. It cuts across all three fields. Most consumer texts, such as those by Coles, Reid, Waite and Cassady, Hoyt, Vaile and Canoyer, Campbell, or Gordon try to use the problem approach as a springboard to deal with issues of broader significance. Such texts relate shopping to the problem of making consumer demand effective in the market. Budgeting is subordinated to a study of income and expenditures, national and average rather than imaginary and personal. Troelstrup, in contrast, quotes the Heller Committee budgets for San Francisco families of four persons (an executive with a budget of $12,849.24 before rent; a white collar worker with $5,208.47 excluding housing; a wage earner, $4,111.22) without indicating to what families these budgets may be applied except for the information contained in the budget titles. The U. S. Bureau of Labor Statistics budget for a city worker's family of four persons (1947) is given but there is no discussion of the incomes of city workers' families.

A few examples may show the kind of useful information which the book contains. The chapter on food shopping has good material on grades similar to that in Coles' *Standards and Labels for Consumers' Goods* (1949). The chapter on savings, also, has an intelligent discussion of insurance. It implies, however, that financial security can be achieved by good savings and insurance programs. It seems almost useless to teach the student to plan his personal financial life so carefully without stressing the limits to this kind of planning. Much that will happen to the student financially will depend upon the economy as a whole—the stage of the business cycle, peace or war, the kind of taxes levied, the relative distribution of income, the general level of prices, and the relative levels of different prices. Subject to these developments the individual may labor to balance his budget and achieve financial security.

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TITLES OF NEW BOOKS

Economic Theory; General Economics

BAIN, J. S. *Pricing, distribution and employment: economics of an enterprise system.* Rev. ed. (New York: Henry Holt. 1953. Pp. xvii, 732. $6.50.)

The revised edition includes "a more comprehensive chapter on demand (including added material on the theory of consumer choice)," more attention to the "welfare impacts of competitive and monopolistic pricing," a substantially rewritten treatment of oligopolistic pricing, and a new chapter on the theory of price discrimination. "The conventional theory of income distribution, as developed on certain simple equilibrium assumptions, is now presented without interruption in the three chapters following the section on price theory, while the theory of income and employment, together with an analysis of interest and other distributive shares under nonstationary conditions, follow."

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NOTES

SIXTY-SIXTH ANNUAL MEETING OF THE AMERICAN ECONOMIC ASSOCIATION

Hotel Statler, Washington, D.C., December 28-30, 1953

Preliminary Announcement of the Program

All the sessions of the program deal in some way with the changing structure and functioning of the American economy. Most of the sessions are concerned also with this problem: What are the economic principles which characterize the behavior of an economy of large-scale business units, large labor unions and a considerable degree of governmental intervention and control, but with old and new forms of competition nevertheless playing a strategic role?

Monday, December 28

10:00 A.M. Meeting of the Executive Committee
12:00 M. Luncheon Meeting of the Executive Committee
2:30 P.M. FUNDAMENTAL CHARACTERISTICS OF THE AMERICAN ECONOMY: DEGREES OF COMPETITION, OF MONOPOLY AND OF COUNTERVAILING POWER: THEORETICAL SIGNIFICANCE

Chairman: EDWARD H. CHAMBERLIN, Harvard University
Papers: Countervailing Power, A Moderate Defense of a Modest Innovation
J. K. GALBRAITH, Harvard University
The Economist Plays With Blocs
GEORGE J. STIGLER, Columbia University
Competitive Processes in the American Economy
JOHN P. MILLER, Yale University
Discussion: DAVID MCCORD WRIGHT, University of Virginia

AN APPRAISAL OF ECONOMIC CHANGE

Chairman: MILTON S. HEATH, University of North Carolina
Papers: Twentieth Century Entrepreneurship: An Appraisal of Economic Change
ARTHUR H. COLE, Harvard University
The Changing Structure of Market Competition
ROSS M. ROBERTSON, Federal Reserve Bank of St. Louis
Discussion: FRANK H. KNIGHT, University of Chicago
ANDREAS PAPANDREOU, University of Minnesota

INSTITUTIONAL ASPECTS OF SAVING AND INVESTMENT

Chairman: LESTER V. CHANDLER, Princeton University
Papers: The Structure of the Market and the Price of Money
WALTER A. MORTON, University of Wisconsin
The Institutional Saving-Investment Process and Current Economic Theory
JAMES J. O'LEARY, Life Insurance Association of America
Monetary Policy and the Structure of Debt
E. S. SHAW, Stanford University
Discussion: SUSAN S. BURR, Board of Governors of the Federal Reserve System

8:30 P.M. FACTOR MARKETS VS. PRODUCT MARKETS; IS THE AMERICAN ECONOMY MORE COMPETITIVE IN THE LONG RUN THAN IN THE SHORT RUN?

Chairman: KENNETH E. BOULDING, University of Michigan
Papers: Monopolistic Forms and Competitive Accomplishments
G. WARREN NUTTER, Yale University
Resource Allocation in the United States
ARNOLD C. HARBERGER, University of Chicago
Discussion: SYDNEY ALEXANDER, Columbia Broadcasting Company
RUTH P. MACK, National Bureau of Economic Research
JOE S. BAIN, University of California

DIMINISHING INEQUALITY IN PERSONAL INCOME DISTRIBUTION; RELATION TO FUNCTIONAL DISTRIBUTION AND FACTOR COMPENSATION

Chairman: WASSILY LEONTIEF, Harvard University
Papers: Economic Implications of the Declining Inequality in Income Distribution
GEORGE GARVY, Federal Reserve Bank of New York
On the Process of Income Distribution
ROBERT M. SOLOW, Massachusetts Institute of Technology
Discussion: ALLAN M. CARTTER, Duke University
SELMA F. GOLDSMITH, Department of Commerce

TECHNOLOGICAL PROGRESS AND ECONOMIC INSTITUTIONS

Chairman: ROBERT CALKINS, The Brookings Institution
Papers: The Conditions of American Technological Progress
IRVING H. SIEGEL, Twentieth Century Fund
Innovations and the Size of the Firm
W. RUPERT MACLAURIN, Massachusetts Institute of Technology
Discussion: WALTER ADAMS, Michigan State College
HANS BREMS, University of California
VINCENT F. BOLAND, JR., University of Arizona

Tuesday, December 29

9:30 A.M. INDUSTRIAL PRICING; INSTITUTIONAL PRACTICES VS. ABSTRACT MODELS

Chairman: EDWARD S. MASON, Harvard University
Papers: A Theory of Industrial Markets and Prices
RICHARD B. HEFLEBOWER, Northwestern University
Concepts of Value Theory: Their Operational Significance and Validity
RICHARD RUGGLES, Yale University
Discussion: JESSE MARKHAM, Vanderbilt University
VERNON MUND, University of Washington
HENRY M. OLIVER, Indiana University

FARM PRICES AND FARM INCOMES IN AMERICAN AGRICULTURE: IS AMERICAN AGRICULTURE STILL ESSENTIALLY COMPETITIVE AND LAISSEZ-FAIRE? (Joint Session with American Farm Economic Association)

Chairman: WILLIAM NICHOLLS, Vanderbilt University
Papers: The Impact of Government Programs on Farm Incomes
M. R. BENEDICT, University of California
Competition In Agriculture: Fact or Fiction
GALE JOHNSON, University of Chicago
Discussion: O. V. WELLS, Department of Agriculture
GLEN L. JOHNSON, Michigan State College

WAGE DETERMINATION IN THE AMERICAN ECONOMY; POTENTIALITIES AND LIMITATIONS IN THE USE OF COLLECTIVE ECONOMIC POWER IN VARYING THE COMPENSATION OF LABOR AND CAPITAL

Chairman: John T. Dunlop, Harvard University
Papers: Collective Bargaining and Distributive Shares
Clark Kerr, University of California
The Incidence of Collective Bargaining
Martin Bronfenbrenner, University of Wisconsin
Collective Bargaining and Income Distribution
Harold M. Levinson, University of Michigan
Discussion: John P. Troxell, Stanford University

12:30 p.m. LUNCHEON MEETING: Joint session with the American Finance Association
Speaker: W. Randolph Burgess, Treasury Department

2:30 p.m. ALTERNATIVE POSSIBILITIES OF INFLATIONARY PRESSURES AND HIGHER COST BOTTLENECKS IN AN ECONOMY OF LARGE BARGAINING UNITS AND OF LESS THAN PURE AND PERFECT COMPETITION IN THE MARKETING OF PRODUCTS

Chairman: To be announced
Papers: Are Wage Fixing Arrangements in the American Labor Market Inflationary?
Sumner Slichter, Harvard University
C. L. Christenson, Indiana University
Discussion: Albert Rees, University of Chicago
Clarence E. Ayres, University of Texas
Lorie Tarshis, Stanford University

THE ROLE OF CORPORATE TAXATION IN THE AMERICAN ECONOMY

Chairman: Roy Blough, United Nations
Papers: The Corporation and Corporate Taxation in the American Economy
Gerhard Colm, National Planning Association
The Corporation Income Tax and Management Decisions (Joint Paper)
Keith Butters and John Lintner, Harvard University
Discussion: B. U. Ratchford, Duke University
Mabel Newcomer, Vassar College

NATIONAL TRANSPORTATION POLICY
(This session is being arranged by E. W. Clemens, University of Maryland, for the Transportation Group)

Chairman: To be announced
Papers: Regulatory Standards for a Sound Transportation Policy
Charles L. Dearing, The Brookings Institution
Promotional Standards for a Sound Transportation Policy
Sidney L. Miller, University of Pittsburgh
Discussion: George P. Baker, Harvard University
Lionel W. Thatcher, University of Wisconsin

INDUSTRIAL CONCENTRATION: Joint Session with American Statistical Association

8:30 p.m. PRESIDENTIAL ADDRESS: ECONOMIC IMPLICATIONS OF INSTITUTIONAL CHANGES IN THE ECONOMY
Calvin B. Hoover, Duke University
Chairman: To be announced

Wednesday, December 30

ECONOMIC DOCTRINES IMPLIED IN THE REPORTS OF THE UNITED NATIONS AND OF THE INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT ON UNDERDEVELOPED COUNTRIES

Chairman: Paul T. Ellsworth, University of Wisconsin

Papers: Economic Doctrines Reflected in United Nations Reports
Raymond F. Mikesell, University of Virginia
Economic Development; Theory and Practice à la I.B.R.D.
Joseph J. Spengler

Discussion: Wilfred Malenbaum, Massachusetts Institute of Technology
Theo Suranyi-Unger, Syracuse University

REGIONAL WAGE DIFFERENTIALS IN AN ECONOMY OF LARGE BARGAINING UNITS AND LESS THAN PURE AND PERFECT COMPETITION IN THE MARKETING OF PRODUCTS

Chairman: H. Gordon Hayes, Tulane University

Papers: Interregional Competition
Seymour E. Harris, Harvard University
Geographical Wage Differentials and the Public Interest
John V. Van Sickle, Wabash College

Discussion: Walter Isard, Harvard University
J. Fred Holly, University of Tennessee
Louis B. Perry, Pomona College

THE AUTOMATICITY OF FULL EMPLOYMENT UNDER THE ASSUMPTION OF DIMINISHED DEFENSE EXPENDITURES

Chairman: To be announced

Papers: Means Available for Checking and Reversing a Business Recession
Albert G. Hart, Columbia University
Changes in Defense Expenditures and the Problem of Deflation: Some Possibilities and Methods of Control
George H. Hildebrand, University of California
Full Production or Under-Utilization: Appraisal of Long-Run Factors Other Than Defense
William Fellner, Yale University

Discussion: Clarence Philbrook, University of North Carolina
Kenneth D. Roose, Oberlin College

2:30 p.m. CORPORATE INTERNATIONAL INVESTMENT POLICIES AND PROGRAMS

Chairman: J. B. Condliffe, University of California

Papers: Corporate Direct Investment Abroad Versus Portfolio Lending
August Maffry, Irving Trust Company
Francis McIntyre, California-Texas Oil Co. Ltd.

Discussion: Vincent W. Bladen, University of Toronto
H. J. Dernberg, Federal Reserve Bank of New York

ECONOMIC AND REGULATORY PROBLEMS OF THE BROADCASTING INDUSTRY

(Program arranged by E. W. Clemens, University of Maryland, for the Public Utilities Group)

Chairman: To be announced

Papers: Current Economic and Regulatory Problems of the American Radio and Television Industries
H. H. Goldin, Federal Communications Commission

The Development of British Television Service
RONALD H. COASE, University of Buffalo
Discussion: SIDNEY S. ALEXANDER, Columbia Broadcasting System
PETER O. STEINER, University of California

THE THEORY OF INTERNATIONAL TRADE IN A WORLD OF TRADE BARRIERS AND CONTROLS AND OF VARIEGATED NATIONAL ECONOMIC SYSTEMS
Chairman: JOHN H. WILLIAMS, Federal Reserve Bank of New York
Papers: The Relevance of Classical Theory Under Modern Conditions
GOTTFRIED HABERLER, Harvard University
Forces of Disequilibrium in International Trade
DON HUMPHREY, Duke University
Discussion: JOHN H. ADLER, International Bank for Reconstruction and Development
RICHARD M. BISSELL, JR., Massachusetts Institute of Technology
G. A. ELLIOTT, University of Toronto

5:00 P.M. Business Meeting
6:00 P.M. Dinner—Executive Committee
8:30 P.M. GROWTH DECISIONS IN THE AMERICAN ECONOMY
Chairman: To be announced
Papers: To be announced
EDGAR M. HOOVER
Collective Bargaining and Economic Growth
JOSEPH SHISTER, University of Buffalo
Discussion: To be announced

ECONOMICS IN GENERAL EDUCATION—Round Table
Chairman: BEN W. LEWIS, Oberlin College

Participants:
S. P. MCCUTCHEON, New York University
CLARK ALLEN, Florida State College
E. T. WEILER, Purdue University

ECONOMIC IMPLICATIONS OF AN AGING POPULATION
(This session will consist of a progress report and an analytical review of the research project being carried on by the University of California Institute of Industrial Relations under a grant from the Rockefeller Foundation)
Chairman:
Papers: The Relation Between Age and Economic Status
MELVIN REDER, Stanford University
The Size, Nature and Adequacy of The Resources of the Aged
PETER STEINER, University of California
Aging and the Aged in Relation to the Labor Force
ROBERT DORFMAN, University of California
Discussion: FLOYD A. BOND, Pomona College

Doctoral Dissertation Titles

The United Nations Educational, Scientific and Cultural Organization has published *Theses in the Social Sciences.* The material has been collected from more than twenty states, including Australia, Austria, Belgium, Canada, China, France, India, Italy, Netherlands, New Zealand, Switzerland, United Kingdom and the United States of America. In the case of the last-mentioned country, the Department of State forwarded to UNESCO a selected list of doctoral dissertations for 1948-49 dealing with foreign countries and international problems. (In the case of the U.S.A. more complete coverage is now provided by *Doctoral Dissertations Accepted by American Universities,* compiled annually by the Association of Research Libraries, New York. This volume covers the natural sciences and humanities as well as the social sciences. Attention is also drawn to *Dissertation Abstracts* which is published six times a year by University Microfilms, Ann Arbor, Mich., and which provides titles and short abstracts of dissertations in all fields accepted by about thirty U. S. institutions of higher learning. Readers of this *Review* are also acquainted with the annual list of doctoral dissertations in economics that regularly appears in the September number.)

Committee on Economics in Teacher Education

An American Economic Association Committee on Economics in Teacher Education has been named to work with the recently formed Commission on Economics in Teacher Education. The Commission, sponsored by the Joint Council on Economic Education and working in cooperation with a number of professional associations, is undertaking to explore and promote ways of making economics a functional part of general education for future teachers. The Committee is organizing a round table on "Economics in General Education" for the Christmas meetings. It is hoped that this may be a first step in focusing the talents and energies of those members of the Association who have an interest in improving the teaching of economics in the secondary schools. The members of the Committee are Archibald McIsaac, Horace Taylor and Ben Lewis, chairman.

Everett Eugene Edwards Memorial Awards

The Agricultural History Society has established two annual awards, to be known as *The Everett Eugene Edwards Memorial Awards,* to be given to the authors of the two best articles (presidential addresses excluded) published in *Agricultural History* in each year. One prize of $50.00 is to be assigned to an author who is in course of taking a degree and one prize of $50.00 to an author who is a more advanced scholar.

Deaths

Lucile Eaves, professor emerita of Simmons College, died January 20, 1953.

Paul A. Fischer, U.S.N.R., retired and former government economist, died March 28, 1953.

Robert M. Haig, McVickar professor emeritus of political economy at Columbia University, died June 9, 1953.

George B. Hotchkiss died March 28, 1953.

Hastings Lyon, professor emeritus of the Graduate School of Business, Columbia University, died April 25, 1953.

Frank L. McVey, president emeritus of the University of Kentucky, died January 4, 1953.

Leo Pasvolsky, of the Brookings Institution, died May 5, 1953.

John Sumner, of the University of Buffalo, died in May 1953.

Retirements

N. H. Comish, professor of business administration, University of Oregon, July 1953.

John I. Falconer, chairman of the department of agricultural economics and rural sociology at the Ohio State University.

Harry J. Ostlund, associate professor at the University of Minnesota, June 1953.

Appointments and Resignations

F. Gerard Adams has been appointed instructor in economics at the University of Michigan.

Morris A. Adelman has been promoted from assistant professor to associate professor of economics at the Massachusetts Institute of Technology.

Kenneth G. Ainsworth has been appointed instructor in economics at Bowdoin College.

Eugen Altschul, of the University of Kansas City, was visiting professor of economics at McGill University in the academic session 1952-53.

Dole A. Anderson has been granted leave from New York University to serve as associate professor of air transport economics and acting chairman of the department of economics of Brazil's Institute of Aeronautical Technology at São José dos Campos, São Paulo.

D. Armstrong has been appointed sessional lecturer in economics for the current academic year at McGill University.

Kenneth J. Arrow has been promoted to professor of economics and has been appointed executive head of the department of economics at Stanford University.

Jack Ashley has been appointed instructor in economics at Occidental College.

George Babilot has resigned from the University of Nebraska to accept a Carnegie fellowship at the University of Oregon.

Frank T. Bachmura has been appointed assistant professor of economics at Denison University.

Sanford L. Bacon, formerly of the University of Minnesota, has joined the faculty of the Wharton School of Finance and Commerce, University of Pennsylvania, as an instructor.

Robert H. Bethke has been appointed vice president of the Discount Corporation of New York.

C. Perry Bliss has been promoted to assistant professor of economics and business organization at the University of Buffalo.

William T. Blomquist has been appointed assistant director of the Bureau of Personnel Relations and Placement and faculty lecturer in management in the School of Business, Indiana University.

George F. Bloom has been promoted to assistant professor of real estate in the School of Business, Indiana University.

E. V. Bowden has been appointed instructor in economics at Duke University.

Irving Brecher has been appointed assistant professor of economics at Northwestern University.

Norman V. Breckner has joined the department of economics at the University of California, Los Angeles, as acting assistant professor.

Hans Brems, lecturer in economics, has been appointed assistant professor of economics at the University of California, Berkeley.

William H. Brown, Jr., of Yale University, has been appointed assistant professor of economics at Swarthmore College.

Marion A. Buck has accepted a position as research economist with the Joint Legislative Committee on Commerce and Economic Development of the State of New York.

John A. Buttrick, formerly of Northwestern University, has been appointed associate professor of economics at the University of Minnesota.

Burnham Campbell has been appointed instructor in economics at Stanford University.

Helen G. Canoyer, of the University of Minnesota, has accepted the deanship of the New York State College of Home Economics at Cornell University.

Reynold E. Carlson has resigned from Vanderbilt University to accept a position as economist with the International Bank for Reconstruction and Development.

John M. Chapman has been promoted to professor of banking in the Graduate School of Business, Columbia University.

Carl F. Christ has been promoted to associate professor of political economy at the Johns Hopkins University.

Edward Coen, formerly of the London School of Economics, has been appointed assistant professor of economics at the University of Minnesota.

Jerome B. Cohen has been promoted to associate professor and is subchairman of the department of economics in the School of Business and Public Administration, College of the City of New York.

Charles L. Dearing has been granted a leave of absence from the Brookings Institution to serve as Deputy Under Secretary of Commerce for Transportation in the Department of Commerce.

Jay D. Cook, Jr., has resigned from Denison University to accept an appointment as assistant professor of economics at Washington and Lee University.

M. E. Cravens has been appointed associate professor of agricultural economics at the Ohio State University.

George Dalton has been appointed instructor in economics at Boston University.

Raymond de Roover, of Wells College, has been elected foreign member to the Royal Flemish Academy of Belgium, Section of Letters and Social Sciences, in recognition of his contributions to the history of banking in Belgium.

Laurence de Rycke has been granted a leave of absence from Occidental College to act as assistant field director for the Committee for Economic Development.

Norman H. Deunk, Jr., has been appointed assistant professor of management in the School of Business, Indiana University.

J. Frederic Dewhurst has been named executive director of the Twentieth Century Fund, succeeding Evans Clark, the Fund's first executive director, who has retired after twenty-five years in the post.

Robert Dickerson has been appointed assistant professor of economics at Occidental College.

Douglas F. Dowd, of the University of California, Berkeley, has accepted an appointment as assistant professor of economics at Cornell University.

James Elliott has joined the staff of the department of economics at Denison University as assistant professor.

Paul W. Ellis has been appointed legislative auditor for the Washington State Legislative Budget Committee.

Joseph O. Englet has been appointed assistant professor of economics at Loyola University, Chicago.

Wilson Farman has been promoted from assistant professor to associate professor of economics at Colgate University.

James W. Ford, formerly of Columbia University, has been appointed assistant professor in the department of economics and business administration of Vanderbilt University.

Charles D. Forrest has been promoted to professor of advertising in the School of Business, Indiana University.

Robert R. France has been appointed assistant professor of economics at Princeton University.

Philip I. Friest has been appointed instructor in economics at the University of Minnesota in Duluth.

Franz Gehrels, recently economist for the Mutual Security Agency Mission to Germany and France, has joined the faculty of the University of Minnesota as assistant professor of economics.

George Gibbs has been promoted from assistant professor to associate professor of accounting at Claremont Men's College.

Charles Gilbert has been appointed instructor in economics in the School of Commerce, Accounts, and Finance of New York University.

Cornelius W. Gillam has been promoted to assistant professor of business law in the School of Business of the University of Chicago.

John B. Glassburner, of the University of California, Berkeley, has taken a position in the Federal Reserve Bank of San Francisco.

Frank H. Golay has been appointed assistant professor of economics at Cornell University.

Leland J. Gordon has been granted a year's leave from Denison University to participate in the University of Maryland Overseas Program in Europe.

William B. Greenwald has been promoted to assistant professor of economics in the City College, New York.

Gregory Grossman has been appointed assistant professor of economics at the University of California, Berkeley.

John G. Gurley, of Princeton University, has accepted an appointment as associate professor of economics at the University of Maryland.

Chadwick J. Haberstroh has been appointed instructor in economics at the University of Minnesota.

C. Lowell Harriss, of Columbia University, will lecture this year at the Netherlands Institute of Economics, Rotterdam, under a Fulbright appointment.

George T. Harris has been appointed assistant professor of finance in the School of Business, Indiana University.

Harry P. Hartkemeier, of the University of Missouri, has been awarded a Fulbright grant for travel and lecturing in Europe and the Middle East.

William H. Hayt has been appointed professorial lecturer in business administration in the School of Business of the University of Chicago.

William M. Hench, of Pennsylvania State College, on active duty in the U.S. Air Force, is stationed in Washington, D.C., with a liaison unit maintained by the Research Studies Unit of the Air University.

Eldon S. Hendricksen has been appointed assistant professor of accounting at the University of Idaho.

Edward S. Herman has been appointed an associate in economics at the University of California, Berkeley.

Irwin L. Herrnstadt has been appointed instructor in the department of economics and social science, Massachusetts Institute of Technology.

L. G. Hines has been promoted from assistant professor to professor of economics at Dartmouth College.

Oleg Hoeffding, formerly of Columbia University, has accepted a position as economist with the RAND Corporation in Santa Monica, California.

Austin G. Hoggatt has been appointed instructor in economics at the University of Minnesota.

Robert J. Holloway has been promoted to associate professor of economics and marketing at the University of Minnesota.

James D. Holyoak has been appointed instructor in accounting at the University of Idaho.

Frederick E. Horn has been promoted to associate professor of accounting in the Graduate School of Business, Columbia University.

Hendrik S. Houthakker has accepted an appointment as acting associate professor of economics at Stanford University, effective in January 1954.

Helen M. Hunter has been appointed lecturer in economics at Swarthmore College.

Walter Isard has been appointed associate professor of regional economics, department of city and regional planning, Massachusetts Institute of Technology.

Robert K. Jaedicke, formerly of the University of Washington, has joined the faculty of the University of Minnesota as an instructor.

Dudley Johnson has been appointed assistant professor of economics at Washington College, Chestertown, Maryland.

James B. Jones, of the University of Michigan, has been appointed instructor in economics at Dartmouth College.

Jacob O. Kamm has resigned as director of the School of Commerce at Baldwin-Wallace College to become a financial and investment consultant.

Norman Kaplan has resigned as assistant professor of economics at Stanford University.

Robert A. Kavesh has been appointed assistant professor of economics at Dartmouth College.

Arthur Kemp, formerly of New York University, has joined the faculty of Claremont Men's College as professor of economic education.

Charles J. Kennedy, on leave from the University of Nebraska, is in Boston where he is preparing a history of the Boston and Maine Railroad.

Martin D. Kessler has been appointed instructor in economics at the University of Minnesota.

Marshall D. Ketchum has been promoted to professor of finance in the School of Business of the University of Chicago.

William H. Knowles has been granted a year's leave from Michigan State College to accept a Fulbright research fellowship for study of labor conditions in the West Indies.

H. T. Koplin has been promoted from instructor to assistant professor of economics at the University of Oregon.

Robert J. Lampman has been promoted to associate professor of economics at the University of Washington.

Wassily W. Leontief has been appointed Henry Lee Professor of Economics at Harvard University.

Martin L. Lindahl has been appointed chairman of the department of economics at Dartmouth College, succeeding Clyde E. Dankert.

John W. Lowe has been appointed instructor in economics at the University of Florida.

Robert Macdonald has joined the staff of the University of California at Los Angeles as acting assistant professor of economics and research associate in the Institute of Industrial Relations.

George F. Mair has been appointed assistant professor of economics at Smith College.

Ossian R. MacKenzie has resigned from Columbia University to become dean of the newly established School of Business at Pennsylvania State College.

Jesse W. Markham, of Vanderbilt University, has been appointed visiting associate professor of economics at Princeton University for the current academic year.

Bernard J. Marks has joined the faculty of the University of Minnesota as an instructor.

Edmund J. McCarthy has been appointed to an instructorship at the University of Minnesota.

Joseph L. McDonald has been appointed dean of the college at Dartmouth College.

John S. McGee, of the University of California at Los Angeles, has been appointed research associate in the Law School of the University of Chicago for 1953-54.

Joseph P. McKenna has been promoted to an associate professorship at the University of Minnesota.

Robert B. McNee has been reappointed assistant professor of economics at the City College, New York.

Hermann L. Meyer-Lindenberg has been reappointed lecturer in economics for the spring term in 1954 at the University of California, Berkeley.

Philip T. Meyers, formerly of the University of Texas, has joined the faculty of the University of Minnesota as lecturer.

Merton H. Miller, recently visiting lecturer in economic history at the London School of Economics, has been appointed assistant professor of economics at the Carnegie Institute of Technology.

Wayne E. Moeller has been appointed instructor in economics in the College of Business Administration of the University of Nebraska.

Mary E. Murphy, of Los Angeles State College, has accepted a Fulbright fellowship to Queensland University, Australia. She will also serve as annual research lecturer for the Australian Society of Accountants.

John H. Nixon has been appointed assistant professor of economics at the City College, New York.

George E. Nunn has been promoted to assistant professor of accounting in the School of Business, Indiana University.

James R. G. Olson, formerly of the University of Minnesota, has joined the staff of the International Milling Company in Minneapolis.

Guy H. Orcutt has been promoted to associate professor of economics at Harvard University.

Frederick Ottman has been appointed associate professor of economics in the School of Commerce, Accounts, and Finance of New York University.

Ernest M. Patterson, who served as president of the American Academy of Political and Social Science from 1930 until June 1953, has been named president emeritus. He is succeeded by Dr. James C. Charlesworth.

H. Austin Peck has been promoted to associate professor of economics at the University of Maine.

Robert H. Pelley has been appointed assistant professor of agricultural economics at the Ohio State University.

Orme W. Phelps, on leave from Claremont Men's College, has a Ford Foundation award for research in governmental administration.

Frank C. Pierson, of Swarthmore College, is devoting the current academic year to research with the Labor Relations Council of the University of Pennsylvania.

Robert S. Polkinghorn has been appointed instructor in economics and business research in the College of Business Administration of the University of Nebraska.

Helen C. Potter, formerly of the University of California, has been appointed associate professor of economics at Loyola University, Chicago.

Leonard Rall has been promoted to professor of economics at Michigan State College.

Paul H. Randolph, formerly of the University of Minnesota, has joined the faculty of of the Armour Institute of Technology.

Raymond Rawls, of the University of Pennsylvania, has been appointed instructor in business finance in the College of William and Mary for the current academic year.

Elton Rayack has been appointed assistant professor of economics at the University of Idaho.

Melvin W. Reder has been promoted to professor of economics at Stanford University.

William C. Reher has been appointed instructor in economics at the University of Michigan.

Lawrence J. Remington has been appointed instructor at the University of Minnesota.

Stewart H. Rewoldt has been appointed assistant professor of marketing in the School of Business of Indiana University.

Roy W. Richards has been appointed faculty lecturer in accounting in the School of Business of Indiana University.

Laurie S. Robertson has been appointed assistant professor of economics in the College of Business Administration of the University of Nebraska.

Ross M. Robertson has resigned from the University of Tennessee to accept a position as financial economist with the Federal Reserve Bank of St. Louis.

Romney Robinson has been promoted from instructor to assistant professor of economics in the department of economics and social science, Massachusetts Institute of Technology.

Marvin E. Rozen has resigned from the University of California to accept a Social Science Research fellowship for study in England.

Sverre I. Scheldrup has been promoted to associate professor of personnel and labor economics at the University of Idaho.

Harold P. Scheinkopf has been appointed research manager of the James Thomas Chirurg Co., New York and Boston advertising agency.

Don A. Seastone has been appointed instructor in economics at Bates College.

John W. Sharp has been promoted to assistant professor of agricultural economics at the Ohio State University.

Karl W. Sharp has been appointed instructor in accounting in the College of Business Administration of the University of Tennessee.

Robert P. Shay has been promoted to associate professor of economics at the University of Maine.

Douglas S. Sherwin has been appointed chief of the Production Control Branch in the Office of Synthetic Rubber of the Reconstruction Finance Corporation.

Robert A. Sigafoos has left the Illinois Department of Finance to act as consultant to the treasurer of Puerto Rico.

Fred Slavick, of Princeton University, has accepted an appointment as research associate at the School of Industrial and Labor Relations, Cornell University.

O. W. Smalley, of Northwestern University, has been appointed assistant professor of economics at Loyola University.

Mervin G. Smith has been appointed chairman of the department of agricultural economics and rural sociology at the Ohio State University.

Victor E. Smith has been promoted to professor of economics at Michigan State College.

Warren L. Smith, of the University of Michigan, has been appointed assistant professor of money and banking at the University of Virginia.

J. Douglas Snider has been promoted to director of the Bureau of Personnel Relations and Placement of the School of Business, Indiana University.

Charles H. Spencer has been promoted to assistant professor of accounting in the School of Business, Indiana University.

Jerome L. Stein has been appointed instructor in economics at Brown University.

Jack Stockfisch has resigned from Occidental College to accept an appointment as assistant professor in the department of economics at the University of Wisconsin.

Frank T. Stockton is retiring from his position as dean of University Extension at the University of Kansas. He will continue on the staff as director of special projects in Extension and professor of economics.

George Stolnitz has been appointed assistant professor of economics at Princeton University.

Wolfgang F. Stolper has been promoted to professor of economics at the University of Michigan.

Richard K. Stuart has been promoted to associate professor of economics and business administration at the University of Maine.

Theodore A. Sumberg has accepted a three-month appointment as consultant on fiscal problems to the Chief of Mission, Mutual Security Administration, Saigon, Indo-China.

Ben B. Sutton has been promoted to an associate professorship at the University of Minnesota.

Lyell J. Thomas, of the University of Virginia, has been appointed acting assistant professor in economics at Wake Forest University.

David W. Thompson has been promoted to professor of accounting in the School of Business, Indiana University.

William O. Thweatt, of the American University of Beirut, has been awarded a Ford Foundation fellowship to study problems of economic development relating to the Middle East at the Institute of Colonial Studies, Oxford, England.

Robert E. Walden has been promoted to professor of accounting in the School of Business, Indiana University.

Arthur E. Warner has been promoted to assistant professor of business administration in the School of Business, Indiana University.

Richard S. Weckstein, of New York University, has been appointed assistant professor of economics at the University of Buffalo.

Lionel Weiss has been promoted from assistant professor to associate professor of statistics at the University of Virginia.

Roger W. Weiss has been appointed assistant professor of economics at Vanderbilt University.

Harold B. Wess has resigned from the Graduate School of Business of Columbia University to join the faculty of American University in Washington.

Fred Westfield has been appointed lecturer in economics at Northwestern University.

Thomson M. Whitin, of Princeton University, has accepted an appointment as assistant professor in the School of Industrial Management, Massachusetts Institute of Technology.

Albert K. Wickesberg, formerly of Ohio State University, has been appointed lecturer at the University of Minnesota.

Sylvia Wiseman has been appointed lecturer in economics at McGill University for the current session.

William B. Wolf has been appointed research associate in the School of Business of the University of Chicago.

F. E. Wolfe, of the Procter and Gamble Company, served as visiting professor at the University of Kentucky in the 1953 spring term.

Henry E. Wrapp has been promoted to associate professor of production in the School of Business of the University of Chicago.

David McC. Wright has been granted leave by the University of Virginia for the current session to be a Fulbright professor of economics at Oxford University.

FIFTIETH LIST OF DOCTORAL DISSERTATIONS IN POLITICAL ECONOMY IN PROGRESS IN AMERICAN UNIVERSITIES AND COLLEGES

The present list specifies doctoral degrees conferred during the academic year terminating June 15, 1953, and theses undertaken in the same period. In the latter category the year following the dissertation title is the probable date of completion.

Economic Theory; General Economics

Degrees Conferred

Heshmat Ala'i, Ph.D. Georgetown 1953. Theory of income distribution under the Islamic law with special reference to the function of residual income recipients.

Robert L. Allen, Ph.D. Harvard 1953. Agglomeration and spatial patterns in location analysis.

James W. Beck, Ph.D. Iowa 1953. A macroeconomic approach to distribution theory.

George K. Brinegar, Ph.D. Chicago 1952. Short run income-expenditure relationships.

Joe E. Brown, Ph.D. Texas 1953. The influence of population theory on the development of economic thought.

Hua-Chang Chow, Ph.D. Chicago 1952. The influence of interregional commodity and factor movement on the distribution of income.

Jere W. Clark, Ph.D. Virginia 1953. Intercommunity commodity flows within the United States.

Alfred W. Coats, Ph.D. Johns Hopkins 1953. Methodological controversy as an approach to the history of American economics, 1885-1930.

Daniel R. Fusfeld, Ph.D. Columbia 1953. Economic thought of Franklin D. Roosevelt to 1932.

Francis C. Genovese, Ph.D. Wisconsin 1953. A going concern theory of profits.

John B. Glassburner, Ph.D. California 1953. The social economics of Alfred Marshall.

Edward E. LeClair, Jr., Ph.D. Clark 1953. Economic value in non-literate cultures: a cross-cultural reorientation in the theory of value.

Erwin E. Nemmers, Ph.D. Wisconsin 1953. Hobson and under-consumption.

Martin Segal, Ph.D. Harvard 1953. Some economic aspects of adjustment to technological change.

Martin Shubik, Ph.D. Princeton 1953. Competition and the theory of games.

Maung Tun Thin, Ph.D. Harvard 1953. Theory of markets.

Clemens B. Thoman, Ph.D. Texas 1953. Capital—formation theory in transition.

Walter C. Wagner, Ph.D. Texas 1953. The theory of economic equilibrium: a reflection of social reciprocity.

William R. Waters, Ph.D. Georgetown 1953. Entrepreneurship, dualism and causality: an appreciation of the work of Joseph A. Schumpeter.

Richard S. Weckstein, Ph.D. Yale 1953. The influence of the rate of interest on personal saving.

J. C. Weldon, Ph.D. McGill 1952. Theory of distribution.

Theses in Preparation

MARTIN J. BAILEY, B.A. California (Los Angeles) 1951. The general equilibrium foundations of monetary theory. 1954. ***Johns Hopkins.***

GARY S. BECKER, B.A. Princeton 1951. Discrimination: a theoretical and statistical study. 1954. ***Chicago.***

JAMES F. BECKER, B.A. Iowa 1948; M.A. 1949. The relation of normative economics and positive science: a critical analysis of selected examples. 1955. ***Columbia.***

RICHARD E. BRUMBERG, Ph.B. Chicago 1948; M.A. Illinois 1951. Utility analysis and the consumption function: an empirical test and its meaning. 1954. ***Johns Hopkins.***

JAMES DINGWALL, B.A. Queens (Ontario) 1938; M.A. 1939. Laissez faire and the theory of factions. 1954. ***Chicago.***

LORETTA M. DUNPHY, B.S.C. Drake 1948; M.A. Catholic 1950. Simon Newcomb: his contribution to economic thought. 1954. ***Catholic.***

WILLIAM C. FREDERICK, B.A. Texas 1950. A cultural theory of money. 1954. ***Texas.***

E. GRASBERG. The theory of the firm. 1953. ***McGill.***

DANIEL H. GRAY, B.A. Hobart 1941; M.A. Buffalo 1950. Theory of the interior of the firm. 1954. ***Massachusetts Institute of Technology.***

HAROLD A. J. GREEN, B.A. Brasenose 1947; M.A. Oxford 1948. The social welfare function in the writings of certain moral and political philosophies. 1954. ***Massachusetts Institute of Technology.***

ROBERT S. HANCOCK, B.S. North Central 1947; M.S. Illinois 1949. Selected aspects of oligopoly and oligopsony. 1954. ***Illinois.***

B. J. HINTON, B.A. Baylor 1947; M.A. 1948. Case studies in business pricing techniques as contrasted with price theory. 1954. ***Louisiana State.***

ROBERT W. KAUTZ, B.C.S. Drake 1948; M.A. 1950. The concept of security and the individual firm. 1955. ***Indiana.***

RONAN G. MACDONALD, B.A. St. Dunstan's 1943; M.A. Toronto 1947. Innovation and the modern industrial corporation. 1955. ***Wisconsin.***

LAWRENCE F. MANSFIELD, B.A. Washington & Lee 1947; M.A. Florida 1948. Velocity and the multiplier. 1954. ***North Carolina.***

ALVIN L. MARTY, B.A. California (Los Angeles) 1946. The theory of the progressive economy. 1955. ***California.***

E. SCOTT MAYNES, M.A. Wesleyan 1949. Concepts of saving and their implications. 1954. ***Michigan.***

ERSKINE W. MCKINLEY, B.A. University of the South 1940; M.A. New York 1941. The theory of economic growth in the classical school. 1954. ***California.***

JACOB MINCER, B.A. Emory 1950. Studies in the acceleration principle. 1955. ***Columbia.***

HERBERT R. RUNYON. Contributions of Irving Fisher to modern theory. 1955. ***Michigan.***

JAMES R. SCHLESINGER, B.A. Harvard 1950; M.A. 1952. Wage-cost-price relationships and economic progress. 1953. ***Harvard.***

THOMAS E. SUMMERS, B.A. Stanford 1947; M.A. 1949. Limitations on the size of the firm. 1955. ***Stanford.***

ROBERT F. VOERTMAN, B.S. North Texas State 1946; M.A. Texas 1948. Technology and cultural evolution: a comparative and critical study. 1954. ***Texas.***

DANIEL N. WEIHERMANN, B.A. City (New York) 1949; M.A. Columbia 1950. A method for short-term economic forecasting. 1955. ***Columbia.***

FRED M. WESTFIELD, B.A. Vanderbilt 1950. An examination of the inflationary process and alternative public policies within the framework of multi-sectoral models. 1954. ***Massachusetts Institute of Technology.***

WILLIAM M. YOUNG, B.A. Syracuse 1949; M.A. Princeton 1951. Priorities and allocations. 1954. ***Princeton.***

Economic History; National Economies; Economic Development

Degrees Conferred

TURNER ALLEN, Ph.D. Kentucky 1953. The highway and canal system in eighteenth century France.

VINAYAK V. BHATT, Ph.D. Harvard 1953. Employment and capital formation in underdeveloped countries.

RONDO CAMERON, Ph.D. Chicago 1952. French foreign investment, 1850-1880.

SHE-WO CHANG, Ph.D. Iowa 1953. Problems of industrialization in densely populated underdeveloped countries.

YOU KENG CHIANG, Ph.D. Chicago 1952. British devaluation in 1949.

AN-MIN CHUNG, Ph.D. Pennsylvania 1953. Industrial development in China: history, population prospects.

STANLEY H. COHN, Ph.D. Chicago 1952. The role of the fiscal system in the soviet economy.

CHARLES A. COOMBS, Ph.D. Harvard 1953. Financial policy in Greece during 1947-48.

PAUL H. COOTNER, Ph.D. Massachusetts Institute of Technology 1953. Transport innovation and economic development: the case of the U.S. steam railroads.

GEORGE P. COUTSOUMARIS, Ph.D. Chicago 1953. Possibilities of economic development in the Greek agriculture.

RICHARD A. EASTERLIN, Ph.D. Pennsylvania 1953. Some conceptual aspects of the comparative measurement of economic growth.

CHARLES N. HENNING, Ph.D. California (Los Angeles) 1952. Basis of an independent Korea.

JAMES INGRAM, Ph.D. Cornell 1952. Economic change in Thailand.

BURTON H. KLEIN, Ph.D. Harvard 1953. Germany's economic preparations for war.

THOMAS P. LANTOS, Ph.D. California 1953. Recent economic development in New Zealand.

HAROLD LUBELL, Ph.D. Harvard 1953. The French investment program: a defense of the Monnet plan.

WILLIAM J. NICHOLSON, Ph.D. St. Louis 1953. Some aspects of the economic reconstruction of the Philippines.

FRANK L. ROBERTS, Ph.D. Illinois 1952. An economic analysis of the Chilean production development corporation. A case study in economic cooperation.

DANIEL L. SPENCER, Ph.D. American 1953. Mixed and joint corporations as tools of economic development: a case study based on India's experiments in new types of enterprises.

JOHN S. SPRATT, Ph.D. Texas 1953. Economic history of Texas 1875-1900.

JAMES H. STREET, Ph.D. Pennsylvania 1953. The mechanization of cotton production: a case study in the theory of economic development.

JAN B. TULASIEWICZ, Ph.D. Michigan 1953. Northern Rhodesia and its development.

W. OKEFIE UZOAGA, Ph.D. Cornell 1953. The impact of foreign loans on Liberia.

SCOTT D. WALTON, Ph.D. Iowa (Ames) 1953. Agriculture and federal antitrust activity: an economic history and analysis.

Theses in Preparation

DORIS G. ADAMS, B.A. California 1947. Population and resource problems in Lebanon. 1955. *California.*

W. E. ADAMS, B.A. McGill 1948. The economics of development. 1953. *McGill.*

WARREN E. ADAMS, B.A. California 1947. Land tenure and agricultural labor in Lebanon. 1955. *California.*

FREDERICK C. ARMSTRONG, B.A. Southern Illinois 1947; M.A. Michigan State 1948. Community measures for economic development. 1953. *Illinois.*

ABRAHAM S. BECKER, B.A. Harvard 1949; M.A. Columbia 1952. Economics of the cotton textile industry in the U.S.S.R. 1955. *Columbia.*

WALTER D. BOWLES, B.A. Washington 1949; M.A. Columbia 1952. The economics of the lumber industry of the Soviet Union. 1955. *Columbia.*

CHRISTOS E. CASSIMATIS, B.A. Indiana State Teachers 1949; M.A. Indiana 1950. Postwar monetary reforms in Greece 1944-1951: a critical evaluation of the attempts at monetary rehabilitation. 1955. *Indiana.*

NAM KYU CHUNG, B.S. Kyoto 1941. The rehabilitation program of Korea. 1954. *Wisconsin.*

SEYMOUR J. COHEN, B.S.S. City (New York) 1942; M.A. Columbia 1949. Monetary problems of the Middle East since 1939. 1954. *Pittsburgh.*

GEORGE C. CONSTANTACOPOULOS, Dipl. Law, Athens, Greece, 1937. Competition and economic development in Greece, 1954. *Columbia.*

CHESTER L. COOPER, B.S. New York 1939. The role of the Chettyar moneylenders in the economic development of Lower Burma. *American.*

PETER DIMITRIYEVITCH, B.A. Williams 1949; M.P.A. Harvard 1953. Industrial growth in postwar Yugoslavia. 1954. *Harvard.*

NORTON T. DODGE, B.A. Cornell 1948; M.A. Harvard 1951. The soviet tractor industry and the mechanization of agriculture. 1954. *Harvard.*

JOHN C. EDDISON, B.A. Cornell 1942; M.S. 1948. The development of the paper industry in India. 1955. *Massachusetts Institute of Technology.*

ROBERT F. EMERY, M.A. Michigan 1952. The contribution of Burmese financial institutions to economic development. 1955. *Michigan.*

J. GERIN-LAJOIE, B.A. Paris 1945; M.A. St. Louis 1947. Wages and profits in the Canadian primary textile industries. 1954. *McGill.*

WILLIAM P. GLADE, JR., B.A. Texas 1950; M.A. 1951. The role of government enterprise in the economic development of undeveloped regions: Mexico, a case study. 1954. *Texas.*

KHALIL A. G HAMOUDA, B.S. Alexandria, Egypt, 1946; M.S. Minnesota 1953. Economic aspects of land tenure in Egypt. 1955. *Minnesota.*

JAMES B. HENDRY, B.A. William and Mary 1946; M.A. Columbia 1951. Occupation policy and post-war economic development in Japan. 1955. *Columbia.*

WILLIAM C. HOLLINGER, B.A. Swarthmore 1947. The theory of economic development and the principle of comparative advantage. 1954. *Massachusetts Institute of Technology.*

EDMOND C. HUTHINSON, B.A. Southwestern 1936; M.A. Virginia 1937. Postwar financial developments in Japan. 1954. *Virginia.*

S. SIOMA J. KAGAN, Diplom-Ingenieur, Berlin 1931; M.A. American 1949. The population factor—an obstacle to economic development with special reference to Japan. 1954. *Columbia.*

ABDUL AMIR KUBBAH, B.B.A. American University of Beirut 1944. Planned industrialization of Iraq. 1954. *New York.*

CHUNG-TAI LU. Elements of a theory of economic development for underdeveloped countries: a generalization of projected patterns of economic development in countries surveyed by the United Nations organizations. 1954. *Maryland.*

SANTIAGO P. MACARIO, M.A. University of Cordoba, Argentina, 1941. Development in the field of agriculture as a factor in industrialization of Latin American countries. 1954. *Texas.*

G. B. MCCONKEY, B.A. Manitoba 1949; M.A. Toronto 1950. The relevance of certain economic concepts to some phases of Canadian economic development. 1954. *Toronto.*

PAUL F. MCGOULDRICK, B.A. Maine 1947; M.A. Harvard 1952. Danish agriculture in the 19th century and its relationship to the English trading area. 1953. *Harvard.*

LEON A. MEARS, B.A. Minnesota 1930. Impediments to and inducements for private development investment; Puerto Rico, a case study. 1953. *California.*

ORLANDO J. MENEZES, B.A. Bombay 1948; M.A. Poona 1950; M.A. Princeton 1952. The theory of economic growth for underdeveloped countries. 1953. *Princeton.*

WALTHER P. MICHAEL, B.S. Columbia 1950. Domestic capital supply in the economic development of India. 1955. *Columbia.*

M. MILLER, B.Com. McGill 1945; M.Sc. University of London 1949. Policy aspects of Quebec economic development. 1953. *McGill.*

RODNEY H. MILLS, JR., B.A. Yale 1944; M.A. Yale 1948. Italy in the post-war world economy. 1955. *Columbia.*

GHOLAM R. MOGHADAM, B.A. Upsala. A study of economic development in Iran. 1954. *Stanford.*

ABDUL MOQUIT, B.A. University of Punjab 1944; M.A. 1946. Economic development of Pakistan. 1955. *Wisconsin.*

AMOTZ MORAG, M.A. Hebrew University (Jerusalem) 1952. Financing development. 1954. *Johns Hopkins.*

MAX G. MUELLER, B.S. London 1949. The role of capital in underdeveloped countries. 1955. *Illinois.*

GEORGE C. NICKOLAKIA, B.A. American (Cairo) 1943; M.A. Virginia 1952. Some aspects of economic reconstruction in Korea. 1954. *Virginia.*

ALVAN J. OBELSKY, M.A. Michigan 1952. Technological change and the entrepreneur in Japan. 1955. *Michigan.*

HARLOW OSBORNE, B.A. Colgate 1936; M.B.A. New York 1940; M.S. Denver 1942. Contribution of national income analysis to the theory of economic development. 1954. *Georgetown.*

MOEEN U. QURESHI, B.A. Government College, Lahore, Pakistan 1949; M.A. 1951. The evolution of banking and credit institutions in Pakistan, 1947-1952. 1953. *Indiana.*

CAROLYN A. RECHT, B.A. Stanford 1947, M.A. Radcliffe 1949. The impact of industrialization on soviet housing conditions. 1953. *Harvard.*

CHARLES E. ROLLINS, B.A. San Diego State 1950. The role of raw materials exploitation in economic development with special consideration to Bolivia and Venezuela. 1954. *Stanford.*

AZIZ SAYEED, B.S. Agricultural College, Poona, 1946. Role of cooperation in the social and economic planning of India and principles of cooperation. 1955. *California.*

ARTHUR O. SHARRON, B.S. City (New York) 1939. The postwar Japanese price structure (with particular reference to food) and its implications on the basic economic problems of Japan. *American.*

AHMAD F. SHERIF, S.B.Com. Farouk I 1947; M.B.A. Chicago 1951. The role of capital formation in industrialization of underdeveloped countries. 1953. *Chicago.*

FRED C. SHORTER, B.A. Reed 1944; M.A. Haverford 1947. Recent developments in the jute industry. 1954. *Stanford.*

E. C. SIEVWRIGHT, B.S. London 1950. The problem of economic growth in a provincial economy. 1953. *McGill.*

HOWARD F. SMITH, B.A. Wayne 1940; M.B.A. Harvard 1942. United Nations plan for the reconstruction of Korea. *American.*

JEROME L. STEIN, B.A. Brooklyn; M.A. Yale 1950. The pattern of economic development in selected British African colonies since 1940. 1954. *Yale.*

CHRIS A. THEODORE. Demographic aspects of the Greek economic problem. 1954. *Boston.*

JOSEPH W. THOMPSON, B.S. Illinois 1948; M.S. 1949. An economic history of the Mesabi division of the Great Northern Railroad. 1954. *Illinois.*

PEDRO C. M. TEICHERT, B.A. Mexico City College 1950; M.A. 1951. Uruguay's economic development policies. 1953. *Texas.*

S. WISEMAN, B.A. McGill 1948; M.A. 1950. Theory of planning for industrialization of underdeveloped areas. 1953. *McGill.*

TARO YAMANE, B.A. Tokyo 1941; M.A. Wisconsin 1951. Studies in the Japanese postwar inflation. 1954. *Wisconsin.*

PHILIP H. ZOLDESTER, Dr.rer.pol. Vienna 1948. The Austrian labor movement. 1954. *New York.*

Statistics and Econometrics

Degrees Conferred

GEORGE H. BORTS, Ph.D. Chicago 1953. Cost and production relations in the railway industry.

VICTOR R. FARHI, Ph.D. New York 1952. An analysis of selected measures of the American economy.

BURTON L. FRENCH, Ph.D. Iowa (Ames) 1952. Estimation by simultaneous equations of resource productivities from time series and cross sectional farm observations.

SHINICHI ICHIMURA, Ph.D. Massachusetts Institute of Technology 1953. Inquiry into non-linear macro-dynamic theories of economic fluctuations.

ROBERT E. KUENNE, Ph.D. Harvard 1953. The use of input-output techniques for the estimation of employment in the Delaware valley.

SHAO-KUNG LIN, Ph.D. Illinois 1952. On using index numbers for real national income valuations.

JOHN M. MATTILA, Ph.D. Wisconsin 1953. Econometric analysis of investment in the construction industry.

NORMAN RUDY, Ph.D. Chicago 1952. Some problems in the economics of industrial sampling inspection.

RILEY C. SPROWLS, Ph.D. Chicago 1951. A consideration of the hypothesis that utility analysis can explain choices involving risk.

Theses in Preparation

LOUIS P. CECCHINI, B.A. Wesleyan 1942; M.A. 1944. The historical development of time series analysis. 1954. *Catholic.*

PETER CODY, B.A. Yale 1947; M.A. 1948. The concept of production measurement. 1954. *Yale.*

BRUCE E. EDWARDS, M.A. Michigan 1950. Statistical derivation of regional and inter-regional input-output coefficients. 1954. *Michigan.*

WALLACE W. GARDNER, B.S. Purdue 1942; M.B.A. Michigan 1947. Interindustry relations data and linear programming methods as applied to problems of business management. 1953. *Michigan.*

AMOR GOSFIELD, B.A. Pennsylvania 1929. Puerto Rican input-output study. 1954. *Pennsylvania.*

ELMORE A. HALE, B.A. Gustavus Adolphus 1943; M.A. Illinois 1948. Measurement of geographical differences in cost of living. 1953. *Illinois.*

THOMAS H. HUGHES, B.A. City (New York) 1942; M.A. Catholic 1950. The Federal Reserve Board index of industrial production. 1954. *Catholic.*

THOMAS A. MARSCHAK, Ph.B. Chicago 1947; M.A. Stanford 1952. Application of linear programming to oil distillation. 1954. *Stanford.*

ALVIN MAYNE, B.A. Chicago 1935; M.B.A. 1938. Statistical analysis of competition between the fuels used by American railroads. *Chicago.*

DANIEL E. O'CONNELL, B.A. Washington 1943; M.B.A. 1948. The measurement of industrial productivity by the subproduct and final product methods. 1955. *Wisconsin.*

SIGMUND P. ZOBEL, B.S. Buffalo 1943; M.B.A. 1948. Some applications of statistical quality control techniques to the analysis of economic time series. *Chicago.*

Economic Systems; Planning and Reform; Cooperation

Degrees Conferred

THAD P. ALTON, Ph.D. Columbia 1953. Polish post-war national economic planning.

GREGORY GROSSMAN, Ph.D. Harvard 1953. Capital-intensity: a problem in soviet planning.

JACKSON MEYERS, Ph.D. Southern California 1953. The theory of state monopoly operation of the economy.

Theses in Preparation

ROLLIN O. DUNSDON, B.S. North Dakota 1941; M.S. Oregon State 1948. Financial structure and dividend policies of cooperatives. 1955. *Wisconsin.*

SIDNEY KLEIN, B.S. California (Los Angeles) 1948; B.A. Southern California 1949. The economics of the land reform policies of the Chinese Communist Party from October 1949 to December 1952. 1955. *Columbia.*

A. MURRAY, B.A. Manitoba 1949. Economic planning in the modern state. 1954. *Toronto.*

WILLIAM E. WALKER, B.S.A. Toronto 1951; M.S. Wisconsin 1952. The theory of the firm applied to cooperatives. 1954. *Wisconsin.*

National Income and Social Accounting

Degrees Conferred

William I. Abraham, Ph.D. Columbia 1953. Problems of national income measurements in underdeveloped countries with special reference to the Philippines.

Wilbur T. Billington, Ph.D. Minnesota 1952. Income in the tenth Federal Reserve district—a study in economic development.

Jean Mann Due, Ph.D. Illinois 1953. Canadian consumption patterns.

Irwin Friend, Ph.D. American 1953. Volume and composition of individual's saving in the United States.

Charles E. Johnson, Ph.D. Minnesota 1952. The concept and measurement of business income for corporate reporting.

Stanley J. Sigel, Ph.D. Harvard 1953. A comparative study of three social accounting systems: national income, input-output, and moneyflows.

Robert M. Soldofsky, Ph.D. Washington (St. Louis) 1953. Arkansas income since 1909.

Louis Winnick, Ph.D. Columbia 1953. Residential wealth estimates.

Theses in Preparation

Ernest W. Brown, B.A. Oklahoma 1943. National income prior to 1869. 1954. *Pennsylvania.*

Bernard Clyman, B.S. Temple 1939. Analysis of the characteristics of income distribution for the selected years, 1925, 1929, 1932, and 1936 (Sample of Delaware Tax Returns). 1954. *Pennsylvania.*

Harold W. Guthrie, M.A. Michigan 1948. Trends of liquid asset—income ratio among different population groups, 1947-52. 1954. *Michigan.*

Gloria Hile, M.A. Michigan 1951. Interregional balance of payments of the Southeast for 1950. 1954. *Michigan.*

Richard B. Maffei, B.S. Massachusetts Institute of Technology 1945; M.B.A. Pennsylvania 1948. Changes in the distribution of income by states, 1929-52. 1955. *Pennsylvania.*

Edwin Mansfield, B.A. Dartmouth 1951; M.A. Duke 1953. Income and city-size, 1950. 1954. *Duke.*

Business Fluctuations; Prices

Degrees Conferred

James R. Elliott, Jr., Ph.D. Syracuse 1953. Insulation and the implementation of the Employment Act of 1946.

James Hellie, Ph.D. Minnesota 1952. Securities, price support, interest rates and price inflation.

Arthur R. Rosenbaum, Ph.D. Columbia 1952. Business attitudes toward counter cyclical planning 1929-1949.

Beryl W. Sprinkel, Ph.D. Chicago 1952. Debt and economic stabilization.

Elsie M. Watters, Ph.D. Texas 1953. An analysis of business fluctuations in New Orleans.

Theses in Preparation

D. E. Armstrong, B.A. Alberta 1949; B.Com. 1950. The acceleration principle in relation to investment output relationships. 1953. *McGill.*

Calvin P. Blair, B.A. Texas 1949. International transmission of business cycles. 1954. *Texas.*

Sidney E. Chernik, B.A. Manitoba 1947; M.A. Toronto 1948. Studies in the international spread of business cycles. 1954. *Massachusetts Institute of Technology.*

Donald A. Corbin, B.S. California 1942; M.B.A. 1943. Accounting reports during inflation and deflation. 1955. *California.*

Mahomed Ghozlan, LL.B. Alexandria 1944; M.A. Yale 1947. The recession of 1948-1949. 1954. *Yale.*

John W. Henderson, Jr., B.A. Denison 1949; M.B.A. Northwestern 1950. Price forecasting and the meat industry. 1954. *Wisconsin.*

James B. Jones, M.A. Michigan 1951. The pattern of debt ownership on stabilization policy. 1955. *Michigan.*

John H. McCoy, B.S. Kansas State 1940; M.S. 1942. An analysis of wheat prices. 1955. *Wisconsin.*

Henry L. Miller, Jr., B.A. Kansas 1947; M.A. 1948; B.A. Oxford 1950. An empirical study of the demand for a consumers' durable good. 1954. *Harvard.*

Edward R. Sopiarz, B.S. Wisconsin 1949; M.S. 1950. Aspects of the business cycle in relation to standards of living. 1955. *Wisconsin.*

Paul W. Zickefoose, B.A. Seattle Pacific 1939; M.A. Washington 1949. Income and employment in Kansas. 1954. *Kansas.*

Money and Banking; Short-Term Credit; Consumer Finance

Degrees Conferred

Julian G. Buckley, Ph.D. New York 1952. The role of the commercial banks of the United States in financing wars 1812-1845.

John W. Hannaford, Ph.D. Harvard 1953. French interwar monetary problems.

George T. Harris, Ph.D. Iowa 1953. The capital structure in American banking.

Edward S. Herman, Ph.D. California 1953. The Transamerica case: a study of the Federal Reserve Board antitrust proceeding.

Lester B. McAllister, Jr., Ph.D. Oregon 1953. Monetary and banking theories of Albert Gallatin.

Lawrence J. Minet, Ph.D. Columbia 1953. Changes in reserve requirements of commercial banks in the United States and foreign nations 1930-1950.

H. Robert Powell, Ph.D. Illinois 1952. Concepts of creditorship.

Blaine G. Schmidt, Ph.D. St. Louis 1953. A statistical study of credit unions in Missouri.

Ira O. Scott, Jr., Ph.D. Harvard 1953. Monetary policy, the theory of assets, and the availability of credit.

Thomas E. Wenzlau, Ph.D. Illinois 1953. Canadian postwar monetary policy 1946-195–.

Theses in Preparation

Robert P. Black, B.A. Virginia 1950; M.A. 1951. Carter Glass and the development of the Federal Reserve System. 1955. *Virginia.*

Carl T. Brehm, B.A. Drake 1949; M.A. 1950. A critical evaluation of the voluntary credit restraint program of 1951-1952. 1955. *Indiana.*

PHILLIP CAGAN, M.A. Chicago 1951. The monetary dynamics of hyerinflations. 1953. *Chicago.*

BENJAMIN CHINITZ, B.A. Yeshiva 1945; M.A. Brown 1951. The demand for cash balances. 1954. *Harvard.*

WALTER L. CRAFFORD, B.A. San Diego State 1948. Commercial bank credit: a case study. 1955. *California.*

REYNOLD P. DAHL, B.S. Minnesota 1949; M.S. 1950. An economic analysis of the short-term agricultural lending activities of Minnesota country banks. 1954. *Minnesota.*

M. GORDON DANIELS, B.A. Doane 1947; M.A. Texas 1949. The Peruvian banking system. 1954. *Texas.*

ROBERT EMMER, B.A. Ohio State 1939; M.A. Chicago 1940. Monetary and fiscal policy in Western Germany since the end of World War II. 1953. *Chicago.*

O. ROGERS FLYNN, JR., B.S. Columbia 1921; M.S. 1943. Capital funds as a factor in the deposit growth of commercial banks, 1940-1950. 1954. *Columbia.*

FRANK L. GREENWAY, M.B.A. Stanford 1940. An investigation into the problem of loan concentration and fund mobility within a branch banking organization. 1953. *Southern California.*

WARREN GUSTUS, S.B.C. North Carolina 1947; M.A. Brown 1950. The commercial banks as suppliers of capital in southern agriculture. 1954. *Chicago.*

GEORGE HORWICH, M.A. Chicago 1951. Open market operations, the rate of interest, and the price level, 1954. *Chicago.*

MARSHALL A. KAPLAN, B.S. Illinois Institute of Technology 1950; M.A. Chicago 1952. Neoclassical monetary theory. 1954. *Chicago.*

DAVID KERLEY, B.A. North Carolina 1938; M.A. Louisiana State 1939. Money in South Carolina prior to commercial banking. *American.*

LEONARD J. KONOPA, B.A. Akron 1948; M.A. Pittsburgh 1949. Contribution of a commercial bank to small business. 1953. *Pittsburgh.*

JAMES LONGSTREET, B.A. Antioch 1949; M.B.A. Northwestern 1950. The corporate structure of consumer finance companies. 1953. *Northwestern.*

JOSEPH W. McGUIRE, Ph.B. Marquette 1948; M.B.A. Columbia 1950. The Federal Reserve Bank of San Francisco and the 12th Federal Reserve District 1930-1952. 1954. *Columbia.*

THOMAS F. MCHUGH, B.S. Howard 1933. The use of Federal Reserve open market operations for fiscal purposes and monetary control, 1939-1950. *American.*

LAURIE S. ROBERTSON, M.A. Nebraska 1948. Commercial loan policy of banks and the structure of markets. 1955. *Michigan.*

AUBREY N. SNELLINGS, B.A. Virginia 1951; M.A. 1953. Postwar monetary developments in Germany. 1955. *Virginia.*

MORRIS L. STEVENS, B.A. Houghton 1941; M.A. Wisconsin 1949. Development of banking in the upper Mississippi Valley. 1954. *Wisconsin.*

KARL F. J. WITTRICH, JR., B.S. Columbia 1937; M.S. 1939. The development of commercial banking in Allentown, Pennsylvania. 1954. *Columbia.*

PETE ZIDNAK, M.A. Southern California 1950. Arizona's small loan problem. 1954. *Southern California.*

Business Finance; Investments and Security Markets; Insurance

Degrees Conferred

Kenneth Black, Jr., Ph.D. Pennsylvania 1953. An analysis of group annuities.

Hassan A. El-Sherif, Ph.D. Chicago 1951. The changing nature of the sources and uses of business funds in Egypt.

Lester Greene, Ph.D. New York 1953. Financial aspects of inventory valuation methods.

Lewis L. Herndon, Ph.D. Illinois 1953. The timing of financial investment and capital formation.

William I. LaTourette, Ph.D. New York 1953. Investment and financial aspects of the brewing industry.

James W. Leonard, D.C.S. Indiana 1952. Investment problems and policies of small life insurance companies.

Powell Niland, D.C.S. Harvard 1953. The effect of federal taxes upon the form of transaction in the acquisition of one company by another.

Frances K. Novotny, Ph.D. New York 1952. Investment policies of insurance companies.

Donald W. O'Connell, Ph.D. Columbia 1953. The insurability of credit risks.

Daniel W. Raaf, Ph.D. Brown 1953. Treatment of security holders in financial standards employed by the Securities and Exchange Commission of Section 11 (b) of the Public Utility Holding Company Act of 1935.

Donald W. Scotton, Ph.D. Illinois 1952. A study of the regulation of installment credit.

Joseph Soshnik, Ph.D. Nebraska 1952. A program to provide long-term capital for operations in small business.

Chester A. Williams, Ph.D. Columbia 1952. Experience and retrospective rating plans.

Dorothy E. Watson, Ph.D. Chicago 1952. An appraisal of life insurance as a medium for the small investor.

Theses in Preparation

John M. Briggs, B.A. Maryville 1949; M.S. North Carolina 1950. Products liability insurance. 1953. *Wisconsin.*

Keith L. Broman, M.B.A. Harvard 1947. Some effects of non-contributing pension plans on corporate financial policy. 1954. *Nebraska.*

Robert S. Cline, B.A. Syracuse 1948; M.B.A. 1949. Valuation of life insurance assets. 1954. *Pennsylvania.*

John A. Clinkenbeard, B.A. Chicago 1947; M.B.A. 1947. Some qualitative and quantitative aspects of long term financing for industrial and public utility corporations from 1935 to 1951. *Chicago.*

Cecil R. Glaves, B.S. Kirksville, Missouri State Teachers 1918; M.A. Chicago 1927. Investment policies of investment companies. *Chicago.*

Gerald E. Gleason, B.S. Creighton 1948; M.A. Nebraska 1950. Trends of federal credit operations in Nebraska (1930-50). 1955. *Nebraska.*

Adolph E. Grunewald, B.S. Wisconsin State 1949; M.S. Wisconsin 1951. The valuation of unquoted securities. 1955. *Wisconsin.*

Roy J. Hensley, B.S. Oregon 1942. Price policies in the insurance industry. 1955. *California.*

Lewis L. Herndon, B.A. Carleton 1950; M.A. Illinois 1951. The timing of financial investment and capital formation. 1953. *Illinois.*

Richard D. Johnson, B.A. Washington 1939. The measurement and significance of short-term liquidity in a going business enterprise. 1953. *Southern California.*

Reuben Kessel, M.B.A. Chicago 1948. Inflation, theory of wealth redistribution and application to private investment policy. 1953. *Chicago.*

Louis Kuipers, B.A. Calvin 1941; M.B.A. Chicago 1947. An analysis of the financial structure of American stock fire insurance companies for the period 1938 to 1947. *Chicago.*

Richard E. Lundquist, B.B.A. Minnesota 1945; M.B.A. Northwestern 1948. The concept and use of quasi-reorganization. 1953. *Minnesota.*

Harris J. Nadley, B.S. Pennsylvania 1950; M.A. Harvard 1952. Theory of authority revenue bonds. 1954. *Harvard.*

Grant M. Osborn, B.S. Brigham Young 1948; M.B.A. Stanford 1950. Compulsory non-occupational disability insurance. 1954. *Pennsylvania.*

Clayton J. Pilcher, B.A. Michigan 1942; M.B.A. 1947. Corporate capital raising by the sale of convertible bonds and stocks in the post-World War II period. 1954. *Michigan.*

Giulio Pontecorvo, B.A. Dartmouth 1946; M.C.S. 1947. Stock exchange history and practice. 1955. *California.*

Charles F. Poston, B.Ed. Eastern Illinois State 1938; M.A. Illinois 1939. Stock options as a method of compensating corporate executives. 1954. *North Carolina.*

Robert M. Stevenson, B.A. Duke 1937; M.A. Pennsylvania State 1947. Group catastrophe insurance. 1954. *Indiana.*

Public Finance

Degrees Conferred

Lang L. Cantrell, Ph.D. Southern California 1953. Some basic modifications of American property taxation.

Russell W. Castle, Ph.D. Pittsburgh 1952. Development of public utility taxation in West Virginia.

Donald J. Daly, Ph.D. Chicago 1953. Estimating collections from the Canadian personal income tax.

Avon M. Dreyer, Ph.D. Wisconsin 1952. Public finance in South Dakota.

Richard F. Ericson, Ph.D. Indiana 1952. The taxation of investment companies in the United States.

Abdel M. Fawzy, Ph.D. Kentucky 1953. A comparative study of gasoline taxes in the United States.

Lenore Frane, Ph.D. Michigan 1953. Depreciation for tax purposes.

Robert Freedman, Ph.D. Yale 1953. Budgetary effects of the operation of federal lending agencies.

Blaine M. Gordon, Ph.D. Indiana 1953. The United States income tax treaty program.

Rudyard B. Goode, Ph.D. Virginia 1953. The distribution and disposition of highway funds in Virginia.

Robert S. Herman, Ph.D. New York 1952. Revenue estimating in New York state government.

Willie W. Hill, Jr., D.C.S. Indiana 1952. Gross receipts taxation in Indiana.

James E. Jensen, Ph.D. Wisconsin 1953. Theory and measured analysis of the medical deduction.

Dale C. Marcoux, Ph.D. Minnesota 1953. The level of the federal personal income tax exemption.

Lawrence B. Myers, Ph.D. Wisconsin 1953. Taxation of income and property in Sweden.

Frederick Picard, Ph.D. Syracuse 1953. The nature and operation of the Ohio retail sales tax.

Leon J. Quinto, Ph.D. Columbia 1952. Municipal income taxation in the United States.

Donald M. Soule, Ph.D. Wisconsin 1953. Emergency excess profits taxation and proposed modifications.

Frederick D. Stocker, Ph.D. Cornell 1952. Non-profit taxes as sources of local revenue.

I-Shuan Sun, Ph.D. Wisconsin 1953. Salt taxation in China.

Theses in Preparation

Robert S. Adden, B.S. Citadel 1947; M.B.A. Pennsylvania 1948. The economic effects of the depreciation provisions of the federal income tax laws. 1954. *North Carolina.*

Arnold L. Barrett, B.A. Georgia 1937; M.A. Virginia 1947. Some aspects of federal debt management. 1954. *Virginia.*

N. E. Caralopoulos, B.A. Athens 1946. Fiscal policy in Greece since 1930. 1954. *McGill.*

Sidney J. Claunch, Jr., B.A. Ohio 1949; M.A. Wisconsin 1951. The fiscal problems of suburban growth. 1954. *Wisconsin.*

Glenn W. Fisher, B.A. Iowa 1948; M.A. North Carolina 1950. State personal income tax jurisdiction. 1954. *Wisconsin.*

Robert N. Howell, B.S. Oklahoma A. & M. 1947; M.S. 1948. A critical study of certain aspects of the North Carolina income tax. 1954. *North Carolina.*

Norman H. Jones, Jr., B.A. Lake Forest 1948; M.A. Iowa 1950. The regional redistribution effects of federal revenues and expenditures. 1954. *Iowa.*

Veldor A. Kopitzke, B.A. Wisconsin 1949; M.A. 1950. Anti-inflationary effects of taxes. 1955. *Wisconsin.*

Harold Q. Langenderfer, B.S. Miami 1949; M.B.A. Northwestern 1950. History of the federal income tax legislation of the Civil War period. 1954. *Indiana.*

Warren A. Law, B.B.A. Southern Methodist 1943; M.B.A. Harvard 1948; M.A. Harvard 1952. Tobacco taxation in the United States. 1953. *Harvard.*

Robert F. Melville, B.A. Ohio Wesleyan 1950; M.A. Harvard 1952. A study in Massachusetts taxation. 1954. *Harvard.*

John C. Miller, B.S.C. Kansas State Teachers 1939; LL.B. Washburn School of Law 1941; M.A. Iowa 1950. Relation of fiscal and economic developments in Iowa—1929-1951. 1954. *Iowa.*

O. C. Miller, B.S. George Peabody 1922; M.Ed. 1938; M.A. 1939. What are the financial problems in the support of public elementary junior high and high schools of the United States? *American.*

Ahmed El Morshidy, B.Agr. Fouad 1941. The unincorporated business tax in the United States, with special emphasis on New York. 1953. *Cornell.*

D. M. Paterson, B.A. Toronto 1951; M.A. 1952. The financing of development of Ontario municipalities. 1954. *Toronto.*

Jackson R. E. Phillips, B.A. Texas 1942. Intergovernmental fiscal relations and the City of New York. 1953. *Columbia.*

Olin S. Pugh, B.S. South Carolina 1948; M.A. Duke 1951. A critical survey of the views on public expenditure of selected economists of the classical period. 1954. *Duke.*

Charles Rattiff, B.S. Davidson 1947; M.A. Duke 1951. The centralization of governmental functions in North Carolina. 1955. *Duke.*

Everett W. Schadt, B.B.A. Boston 1932; M.A. Texas 1947. A case study in municipal finance. 1953. *North Carolina.*

Wilbur A. Steger, B.S. Yale 1950; M.A. Harvard 1952. Averaging of income for income tax purposes. 1954. *Harvard.*

Fang-Wen Wang, B.A. National Chungking 1948; M.B.A. Northwestern 1951. The fiscal reforms of An-Shih Wang. 1954. *North Carolina.*

Othel D. Westfall, B.S. Oklahoma 1931; M.B.A. Northwestern 1947. Tax planning for estates under federal and Oklahoma laws. 1954. *Texas.*

John A. Wilkie, B.A. Wisconsin 1940; M.A. Wisconsin 1950. Some aspects of state taxation of dividend and corporate income. 1953. *Wisconsin.*

International Economics

Degrees Conferred

William R. Allen, Ph.D. Duke 1953. Modern American tariff debates and the trade agreements program.

A. Anastassiades, Ph.D. Pittsburgh 1952. Export controls as a tool of national policy in the United States.

Graydon K. Anderson, Ph.D. Wisconsin 1953. Some economic inferences drawn from the record of the European recovery program.

William N. Breswick, Ph.D. Texas 1953. Texas' stake in foreign trade.

Chris A. Carrat, Ph.D. Florida 1953. A survey and economic evaluation of the foreign trade of Florida.

Edward J. Chambers, Ph.D. Nebraska 1953. Argentina's postwar balance of payments.

Kuo-Sui L. Chang, Ph.D. Illinois 1953. Changes in British commercial policy in the interwar period.

Betty Lou Cross, Ph.D. Illinois 1952. An international investment board for economic development.

Nazih Ahmed Deif, Ph.D. Chicago 1952. The Egyptian trade balance.

Harry C. MacC. Eastman, Ph.D. Chicago 1952. Canadian commercial policy since the war.

Franz Gehrels, Ph.D. Stanford 1953. British balance of payments, 1945-1950.

Maurice H. Hellner, Ph.D. American 1953. United States oil import policy.

Richard S. Landry, Ph.D. Chicago 1952. Unfair competition in foreign trade.

Robert M. Lichtenberg, Ph.D. Harvard 1953. Great Britain's balance of payments, 1868-1912.

Gerald M. Meier, Ph.D. Harvard 1953. Some international aspects of economic development, 1870-1913.

Henry A. Peck, Ph.D. Fletcher School of Law and Diplomacy 1952. Freedom, planning and international trade.

Richard Perlman, Ph.D. Columbia 1953. Balance of payments problems of developing countries.

RALPH B. PRICE, Ph.D. Colorado 1952. Post-war multilateral clearing agreements and their contribution to European economic equilibrium.

CHARLES McK. RAMSEY, Ph.D. Harvard 1953. The international trade of the United Kingdom, 1914-1925.

IRVING A. SIRKEN, Ph.D. Harvard 1953. Fluctuations in Canadian foreign exchange reserves, 1946-50: A study in balance of payments adjustment & foreign economic policy.

Theses in Preparation

STEN H. BERG, University College of Commerce, Stockholm, 1946. Sweden and the Marshall Plan. 1955. *California.*

DAVID KHENG-GWAN CHAN, B.A. Stanford 1950; M.A. Virginia 1953. Elasticities of supply and demand of rice in Southeast Asia. 1955. *Virginia.*

FRANK C. CHILD, B.A. Utah 1941; M.A. Stanford 1947. German exchange control in the inter-war period—a study in economic exploitation. 1954. *Stanford.*

RALPH K. COWAN, M.A. Michigan 1952. The Canadian balance of international payments, 1926-1953. 1955. *Michigan.*

MORRIS CRAWFORD, M.A. Chicago 1951. The French balance of payments and international stability, 1948-50. 1954. *Chicago.*

WILLARD B. DOXEY, B.S. Utah 1937; M.S. 1947. United States dried fruit in international trade. 1955. *California.*

RICHARD S. ECKAUS, B.S. Iowa (Ames) 1946; M.A. Washington (St. Louis) 1948. Dynamic models of international trade. 1954. *Massachusetts Institute of Technology.*

MERL L. FARMER, B.S. Idaho 1937; M.A. Chicago 1951. The relative merits of the "project approach" and the "general assistance approach" in international investment in undeveloped areas. 1954. *Illinois.*

HERBERT H. GLANTZ, B.S.S. City (New York) 1940. Post-war stabilization objectives in intergovernmental commodity agreements: case studies of tin and wheat. *American.*

ABNER GOLDSTEIN, B.S. Northwestern 1950. Inventory cycles and international equilibrium. 1954. *Massachusetts Institute of Technology.*

A. M. M. MOAZZAMUL HUQ, B.A. Dacca 1949. The international aspects of U.S. demand for industrial raw materials. 1954. *Harvard.*

GEORGE M. IWANAKA, B.A. Hamline 1945; M.A. Ohio State 1947. Postwar Germany and the multilateral trade pattern. 1954. *Wisconsin.*

MORDECHAI E. KREININ, M.A. Michigan 1952. Stabilization funds: their past and future. 1955. *Michigan.*

PEDRO C. LEAÑO, B.S. Kansas 1938; M.B.A. California 1950. The balance of payments problem of the Philippine republic. 1954. *Chicago.*

JOHN C. MURPHY, B.A. North Texas State Teachers 1943; M.A. Chicago 1949. Long term contracts for the export of Denmark's butter and bacon. 1954. *Chicago.*

DONALD K. PALMER, B.S. Georgetown 1948; M.P.A. Harvard 1951. External capital problems of the sterling area. 1954. *Harvard.*

A. A. PRESBER, B.A. Humboldt (Berlin) 1949; M.A. Toronto 1952. The Schuman Plan: an advance in international law. 1954. *Toronto.*

RONALD M. REIFLER, M.B.A. Chicago 1948. Post World War II barriers to American investment in British colonial Africa. *Chic* [illegible].

RUDOLPH R. RHOMBERG, M.A. Yale 1950. Canada's U.S. dollar problem and her economic policy. 1954. *Yale.*

Romney Robinson, B.A. McMaster 1947; M.A. Toronto 1948. Aspects of monopolistic competition in international trade. 1954. *Massachusetts Institute of Technology.*

Joel W. Sailors, Jr., B.A. Texas. Comparison of terms of trade as between several countries. 1954. *Texas.*

Bernard F. Sliger, B.A. Michigan State 1949; M.A. 1950. An analysis of the foreign trade of Michigan. 1953. *Michigan State.*

Julius B. Spiro, B.A. Brooklyn 1932; M.A. Columbia 1933. The causes of disequilibrium in the British balance of payments during the post war period. *American.*

Charles E. Staley, B.A. Kansas 1950. Export taxes: a problem in international economics and economic development. 1954. *Massachusetts Institute of Technology.*

Lawrence Starlight, B.A. Dartmouth 1950; M.A. Harvard 1952. British-Spanish trade relations, 1888-1950. *Harvard.*

Chi Tsu Wang, B.A. National Central Political University 1946; M.A. Missouri 1951. Post-war developments in the trade of principal commodities in Southeast Asia and their balance of payments effects. 1953. *Illinois.*

Roger Weiss, M.A. Chicago 1951. Exchange control in Britain 1939-52. 1953. *Chicago.*

David A. Wilson, B.A. British Columbia 1947; B.S. 1948. An analysis of British Columbia exports of softwood lumber. 1954. *California.*

Kenneth M. Wright, B.A. Wooster 1949; M.A. Columbia 1950. The post-war sterling area. 1955. *Columbia.*

Business Administration

Degrees Conferred

Jean R. Anderson, Ph.D. Harvard 1953. The marketing of non-food products in Puerto Rico.

Jesse B. Allen, Ph.D. Chicago 1952. A comparison of the marketing of alcoholic beverages under state monopoly and open license systems.

Jim G. Ashburne, Ph.D. Texas 1953. Accounting reports for financial and operating management (a study of practices in the petroleum industry).

Alton W. Baker, Ph.D. Ohio State 1952. An analysis of personnel management in selected small industrial plants in Ohio.

E. Robert Barlow, D.C.S. Harvard 1953. Management and control of foreign subsidiaries.

Dillard E. Bird, Ph.D. Ohio State 1953. The relation of stabilization within the business organization to guarantees of work or wages.

Grant H. Calder, D.C.S. Indiana 1953. Some problems of selected small family-controlled manufacturing businesses.

Ven-Kai (Victor) Chou, Ph.D. Wisconsin 1952. An analysis of the applicability and effectiveness of retail profit sharing.

C. Roland Christensen, D.C.S. Harvard 1953. Management succession in small and growing enterprises.

Keith Davis, Ph.D. Ohio State 1952. Channels of executive communication.

William H. Day, Ph.D. Ohio State 1953. The marketing of colorizer paint.

Horace J. DePodwin, Ph.D. Columbia 1953. Corporate tax liabilities.

James D. Edwards, Ph.D. Texas 1953. Some significant developments of public accounting in the United States.

Isadore Fine, Ph.D. Columbia 1952. Retail trade area measurement techniques applied to Fort Atkinson, Baraboo and West Bend.

Edwin B. Flippo, Ph.D. Ohio State 1953. An analysis of methods used to maintain and sustain employee profit sharing plans in selected companies.

Roland W. Funk, Ph.D. Chicago 1951. Theoretical foundations for inventory accounting.

Fredric H. Glade, Ph.D. New York 1952. An examination of the economic and social functions of the advertising agency.

Oscar R. Goodman, Ph.D. Wisconsin 1953. Forecasting methods used in sales planning.

Lester Greene, Ph.D. New York 1953. Financial aspects of inventory valuation methods.

Charles H. Griffin, Ph.D. Texas 1953. Petroleum refinery accounting.

James H. Healey, Ph.D. Pennsylvania 1953. An analysis of the span of control and selected coordinating and control media employed by chief executives of Ohio manufacturing companies.

Cyril C. Herrmann, D.C.S. Harvard 1953. Problems of new businesses developing new products.

Robert G. James, Ph.D. Harvard 1953. The effect of inflation on the determination of depreciation.

Charles E. Marberry, Ph.D. Illinois 1952. Income administration policies of industrial corporations.

Martin V. Marshall, D.C.S. Harvard 1953. The problems and limitations of vending.

Stuart W. McFarland, Ph.D. Pittsburgh 1952. The marketing operations of industrial distributors, with particular reference to the Cleveland, Ohio, area.

Ishmael E. McNeill, Ph.D. Texas 1953. Accounting for the finding, production, and processing of natural gas.

Robert Myers, D.C.S. Indiana 1952. Contests and awards for motivation of salesmen.

Carter C. Osterbind, Ph.D. American 1953. An appraisal of the usefulness of partial equilibrium theory in marketing research and analysis.

James M. Owen, Ph.D. Louisiana State 1953. An analysis of the traditional accounting treatment of deferred charges.

Gerald F. Price, Ph.D. Pittsburgh 1953. Retail store mortality in Denver, Colorado.

Karl H. Rahdert, D.C.S. Indiana 1952. Criteria for raw materials inventory control.

Melvin E. Salveson, Ph.D. Chicago 1952. On a rational and quantitative method of production planning and scheduling.

Marvin Tummins, Ph.D. Louisiana State 1953. The use of the Poisson distribution by the auditor.

Paul A. Vatter, Ph.D. Pennsylvania 1953. Structure of retail trade by size of store—an analysis of 1948 census data.

Elmer R. Young, Ph.D. Columbia 1953. Some important distribution cost accounting theories and practices.

Theses in Preparation

Joseph K. Bailey, B.A. and B.S. Salem 1934; M.B.A. Texas 1948. Making the foreman a vital part of the management group at Kelly Air Force Base, Texas. 1954. *Texas.*

Robert W. Barclay, B.A. Indiana 1948; M.B.A. 1949. Ways of evaluating the personnel function. 1954. *Indiana.*

Richard O. Been, B.A. George Washington 1937; M.A. 1939. An appraisal of methodology in marketing research. 1954. *California.*

Edward H. Bowman, B.S. Massachusetts Institute of Technology 1948; M.B.A. Pennsylvania 1949. Organizational problems in executive job evaluation and salary administration. 1954. *Ohio State.*

Virgil E. Boyd, B.A. Iowa Teachers 1943; M.B.A. Northwestern 1948. Price level adjustments on financial statements. 1954. *Northwestern.*

Horace R. Brock, B.S. Sam Houston 1946; B.B.A. 1951; M.A. 1951. Accounting for the production of crude oil. 1954. *Texas.*

Richard L. Brummet, B.Ed. Illinois State Normal 1942; M.S. Illinois 1947. Accounting recognition and managerial uses of fixed and variable cost classifications. 1954. *Michigan.*

Clifford D. Clark, B.A. Kansas 1948; M.A. Chicago 1950. The age distribution of investment in capital goods. 1953. *Chicago.*

Robert H. Cojeen, B.B.A. Michigan 1946; M.B.A. 1947. Personal problems in the decentralized branch plant. 1954. *Indiana.*

Newel W. Comish, B.S. Oregon 1946; M.S. 1947. Markdowns in department stores. 1953. *Ohio State.*

Jay D. Cook, Jr., B.A. Washington & Lee 1943; M.B.A. Pennsylvania 1948. Cost problems of the state "sales below cost" acts. 1954. *Ohio State.*

John W. Coughlan, B.A. Alberta 1948; M.A. Western Ontario 1952. Financial statements and price levels. 1954. *Johns Hopkins.*

Kenneth R. Davis, Ph.B. Wisconsin 1946; M.B.A. 1947. Marketing by household furniture manufacturers: a critical evaluation. 1954. *Chicago.*

Robert E. Dillon, B.S. Massachusetts 1947; M.B.A. Ohio State 1948. The exclusive agency as a method of distribution. 1954. *Ohio State.*

George A. Edwards, B.A. Western Ontario 1947; M.Comm. Toronto 1949. Marketing problems in an infant industry. 1954. *Columbia.*

Abdel Aziz El-Sherbini, B.Comm. Fouad 1948; M.B.A. Chicago 1951. Behavior norms in the consumer market. 1954. *Iowa.*

Leo G. Erickson, B.S.C. Iowa 1948; M.A. 1952. An analysis of national income data as applied to sales forecasting. 1954. *Iowa.*

Warren W. Etcheson, B.S. Indiana 1943; M.A. Iowa 1951. Marketing adjustments to factor price changes in the food industry. 1954. *Iowa.*

Arthur Highman, B.S. Armour Institute of Technology 1935; M.B.A. Chicago 1939. Self administered questionnaires as a technique for measuring the market position of a brand: a critical appraisal. 1954. *Chicago.*

Bob R. Holdren, B.A. Indiana 1948; M.A. 1949. An economic analysis of a retail food market: study of grocery stores in Anderson, Indiana. 1954. *Yale.*

Ralph C. Hook, Jr., B.A. Missouri 1947; M.A. 1948. Problems in the marketing of used agricultural machinery. 1954-55. *Texas.*

James M. Hund, B.A. Amherst 1943; M.A. Princeton 1951. A case study in managerial decision-making. 1954. *Princeton.*

Allen F. Jung, B.A. Loyola 1942; M.A. 1944; M.B.A. Chicago 1947. Small town retail buying. 1954. *Chicago.*

E. W. Kierans, B.A. Loyola. The theory of business organization. 1953. *McGill.*

Peter S. King, B.S. Michigan 1947; M.B.A. 1948. Retail markup variations and their determinants. 1954. *Michigan.*

Maybelle Kohl, B.A. Wisconsin 1932; M.A. Northwestern 1938. The role of accounting in price fixing. 1954. *Columbia.*

Sam A. D. Leifeste, B.A. Southwestern 1926; M.A. Texas 1929. Characteristics of the Latin-American market in Texas. 1954-55. *Texas.*

Roy D. MacTavish, B.A. Juniata 1936; M.A. Pittsburgh 1938. Executive development: an evaluation of the Bigelow Institute of Industrial Management. 1953. *Cornell.*

Robert B. McCosh, B.S. Kansas State Teachers 1936; M.S. Denver 1944. Internship programs in accounting: an analysis and evaluation. 1954. *Indiana.*

Phillip McVey, B.A. Municipal Wichita 1942; M.B.A. Harvard 1947. Employee benefits for outside salesmen. 1954. *Ohio State.*

Philip T. Meyers, B.S. Oklahoma A. & M. 1948; M.S. 1951. Cost concepts and reports as they affect managerial decisions. 1954. *Texas.*

Donald F. Mulvihill, B.S. Illinois 1933; M.A. Chicago 1937. A research approach to expanding sales through market communication: a case study. 1954. *Chicago.*

Kenneth H. Myers, B.A. Harvard 1947; M.B.A. 1949. The marketing problems of a major firm in a capital goods industry, 1880-1950. 1954. *Northwestern.*

William A. Paton, Jr., B.A. Michigan 1949; M.B.A. 1951. The effect of inflation on the measurement of corporate income—with emphasis on the monetary items. 1954. *Michigan.*

John K. Pfahl, B.A. Pennsylvania State 1947; M.B.A. 1949. An analysis of concentration in retailing. 1953. *Ohio State.*

Jean T. Pumroy, B.S.C. Iowa 1949; M.A. 1950. The express warranty as an aspect of marketing policy. 1954. *Iowa.*

John J. Rath, B.S. Detroit 1938; M.B.A. New York 1939. A study of the methodology of pricing policies and practices in the machine tool industry. 1955. *Michigan.*

Robert S. Raymond, B.S. Kansas 1934; M.B.A. 1951. A study of the economics of wool grease recovery in the United States, with special reference to marketing. 1954. *Ohio State.*

Donald E. Roark, B.S.C. De Paul 1944; M.B.A. Wisconsin 1950. Study of federal income tax problems of real estate developers. 1954. *Indiana.*

Harry V. Roberts, B.A. Chicago 1943; M.B.A. 1947. Some suggestions for more effective use of marketing research. 1954. *Chicago.*

David J. Schwartz, Jr., B.S. Nebraska 1948; M.B.A. Ohio State 1949. Evaluation of the sales training programs of selected life insurance companies. 1953. *Ohio State.*

Martin L. Shotzberger, B.S. Richmond 1948; M.S. 1949. Stability and flexibility in department store organization. 1954. *Ohio State.*

Frank A. Singer, B.S. Indiana 1948; M.B.A. 1949. A summary and evaluation of selected terms of variable usage in financial accounting. 1954. *Indiana.*

John D. Stanley, B.A. Harvard 1948; M.B.A. Indiana 1950. The informal organization as a management problem. 1954. *Indiana.*

J. Richard Stevens, B.S.C. Iowa 1940; M.A. 1951. The impact of marketing research upon the conduct of manufacturers advertising. 1954. *Iowa.*

Waino W. Suojanen, B.S. Vermont 1942; M.B.A. Harvard 1946. Liquidity, growth, and the organization of the firm. 1954. *California.*

Albert G. Sweetser, B.A. Harvard 1937. Integration of business studies curriculum. *American.*

Donald A. Taylor, B.A. Western Ontario 1947; M.B.A. Michigan 1949. Some aspects of the use of certification marks in the marketing of consumer goods and services. 1954. *Michigan.*

Bertram L. Trillich, B.S. Northwestern 1938; M.S. Arizona 1939; M.B.A. Harvard 1941. Buying practices of certain Texas department stores. 1954. *Ohio State.*

Vernon H. Upchurch, B.B.A. Oklahoma 1942; M.B.A. 1947. Contributions of G. Charter Harrison to the development of cost accounting. 1954. *Texas.*

Samuel M. Woolsey, B.A. Texas 1931; M.B.A. 1933; M.B.A. Harvard 1935. Criteria of materiality in accounting. 1954. *Texas.*

Theodore R. Yantis, B.A. Otterbein 1947; M.B.A. Ohio State 1948. A marketing study of the prefabricated housing industry. 1954. *Ohio State.*

Industrial Organization; Public Regulation of Business

Degrees Conferred

Harold J. Barnett, Ph.D. Harvard 1953. Atomic energy in the U.S. economy—a consideration of certain industrial, regional, and economic development aspects.

Cecil M. Birch, Ph.D. Toronto 1953. A revised classification of the forms of competition with application to the molded plastics industry.

David W. Bluestone, Ph.D. American 1953. The problem of competition among domestic trunk airlines.

Arthur T. Dietz, Ph.D. Princeton 1953. An analysis of decrees under the Sherman Act.

Hugh K. Hawk, Ph.D. Virginia 1953. United States economic policy and the aluminum industry.

William H. Hohmann, Ph.D. St. Louis 1953. The large business corporation as a socioeconomic institution.

Harry T. Koplin, Ph.D. Cornell 1952. Certification criteria under the Natural Gas Act.

Glenn A. Lehmann, Ph.D. Harvard 1953. The market for sulfur: a study in duopoly.

Harvey J. Levin, Ph.D. Columbia 1952. Cross-channel ownership of mass media: a study in social valuation.

Boyd L. Nelson, Ph.D. Wisconsin 1953. Direct governmental aids to business.

John H. Nixon, Ph.D. Harvard 1953. Government control of lumber prices in World War II.

Almarin Phillips, Ph.D. Harvard 1953. Capacity: a study in inter-industry economics.

Gideon Rosenbluth, Ph.D. Columbia 1952. Industrial concentration in post-war Canada.

Edward G. Schiffman, Ph.D. Harvard 1953. The food and agriculture policies and programs of U.S. military government in post-war Germany; beginning of occupation to 30 June 1949.

Richard U. Sherman, Jr., Ph.D. Harvard 1953. The formulation of military requirements for munitions and raw materials.

Gilbert N. Smith, Ph.D. Nebraska 1952. The changing attitude of the federal government toward competition and monopoly, 1911-1933.

Theses in Preparation

Seneca Eldredge, B.A. Amherst 1948. American Merchant Marine policy 1936-1953. 1954. *Columbia.*

Vincent A. Fulmer, B.A. Miami 1949. The pricing of U.S. Postal services. 1954. *Massachusetts Institute of Technology.*

Benjamin Goldberg, B.S. St. Johns 1934; M.A. New York 1938. A case study in price control during the Korean emergency—the petroleum industry in the U.S.A. *American.*

Daniel C. Hamilton, B.A. Harvard 1941; M.B.A. 1943. Price-output relations in oil refining; some aspects of the competitive concept and public policy. 1954. *Columbia.*

Joseph G. Hattersley, B.A. California 1947. The expropriated Mexican oil industry—some economic aspects. 1955. *California.*

Frank L. Hendrix, B.S. Tennessee 1949; M.S. 1950. Monopoly power in the newsprint industry. 1954. *North Carolina.*

James E. Hibdon, B.A. Oklahoma 1948; M.A. 1949. The Tennessee Valley Authority: an economic evaluation. 1954. *North Carolina.*

Philip A. Klein, B.A. Texas 1948; M.A. 1949. Efficacy of anti-trust regulation. 1955. *California.*

Robert O. Law, B.A. Denver 1946; M.B.A. Southern California 1949. Some suggestions for a re-evaluation of governmental policy relating to price discrimination in view of the pricing function of marketing executives. 1954. *Chicago.*

John A. Menge, B.A. Idaho 1949. Methods and consequences of internal pricing in vertically integrated firms. 1953. *Massachusetts Institute of Technology.*

David C. Motter, B.A. Baldwin-Wallace 1949. The effect of World Wars I and II on "industrial bigness." 1954. *Vanderbilt.*

Willard F. Mueller, B.S. Wisconsin 1950; M.S. 1951. Du Pont: a case study of patterns of industrial growth. 1954. *Vanderbilt.*

Ralph L. Nelson, B.S. Minnesota 1950; M.A. Columbia 1953. The merger movement in the United States, 1904-1919. 1955. *Columbia.*

William Panschar, B.S. Northwestern 1949. Competition and pricing in the baking industry. 1954. *Northwestern.*

Charles L. Quittmeyer, B.A. William and Mary 1940; M.B.A. Harvard 1947. The Chesapeake Bay seafood industry: a study in private management and public policy. 1954. *Columbia.*

Harry L. Shadle, B.S.C. Simpson 1934; M.A. Iowa 1940. Federal taxes and the business structure. 1954. *Iowa.*

Elton TeKolste, B.S. Nebraska 1943; M.A. 1948. Accounting, economic and financial implications of Section 102 of the Internal Revenue Code. 1954. *Michigan.*

David A. Thomas, B.A. Texas Technological 1937; M.B.A. Texas Christian 1948. Plant facilities in a defense economy. 1955. *Michigan.*

Public Utilities; Transportation; Communications

Degrees Conferred

Milton S. Baum, Ph.D. Southern California 1953. The economics of air cargo transportation.

Paul B. Blomgren, D.C.S. Indiana 1952. Passenger traffic deficit in railroads.

John H. Dales, Ph.D. Harvard 1953. The hydro electric industry in Quebec, 1898-1940.

Robert S. Einzig, Ph.D. Michigan 1953. Civil Aeronautics Board control over domestic routes and competition, 1938-52.

Hubert H. Fisinger, Ph.D. Michigan 1953. Michigan state highway expenditure policy.

John W. Fredrickson, Ph.D. Chicago 1953. American shipping and foreign commerce.

JOHN L. HAZARD, Ph.D. Texas 1953. Elements in the crises in Atlantic-Gulf coastal shipping.

WALLACE I. LITTLE, Ph.D. Wisconsin 1952. The determination of subsidies to motor carriers through highway cost allocation.

LEE J. MELTON, JR., Ph.D. Louisiana State 1953. A re-examination of contract carrier regulation and exempt provisions of the Motor Carrier Act of 1935, and their impact on common carrier.

MERTON H. MILLER, Ph.D. Johns Hopkins 1953. Price discrimination in the railway industry.

HOWARD W. NICHOLSON, Ph.D. Harvard 1953. An analysis of modern highway development policies in the Middle Atlantic states.

MERRILL J. ROBERTS, Ph.D. Chicago 1952. The intercity travel market of the United States.

LELAND S. VAN SCOYOC, D.C.S. Indiana 1953. History, development, and economic importance of the Chicago, Indianapolis, and Louisville Railroad Co.

WILLIAM M. ZENTZ, Ph.D. Michigan 1953. The economic effects of forced geographic integration of electric utility holding companies.

CHARLES F. ZIEBARTH, Ph.D. Chicago 1952. Divisions of interline railroad freight rates.

Theses in Preparation

JOHN E. ALTAZAN, B.A. Louisiana State 1950; M.B.A. 1951. Economic aspects of restriction of entry into the motor carrier industry. *Illinois.*

E. V. BOWDEN, B.A. Connecticut 1950; M.A. Duke 1952. The development of the electric power policy of the federal government, 1920-1953. 1954. *Duke.*

WAYNE G. BROEHL, B.S. Illinois 1947; M.B.A. Chicago 1950. The history of the Norwalk Truck Line Company. 1954. *Indiana.*

PHILIP M. CARROLL, B.S. Illinois 1949; M.S. 1951. Highway modernization in the postwar period in certain selected states. 1954. *Illinois.*

BURTON CRANDALL, B.A. California 1928; M.B.A. Harvard 1930. Nationwide organization in the intercity bus industry. *American.*

RALPH K. DAVIDSON, B.A. Oxford 1950; M.A. Johns Hopkins 1953. Price discrimination in gas and electric utility rates. 1954. *Johns Hopkins.*

GEORGE M. DOUGHERTY, JR., B.A. Harvard 1936; M.B.A. Pennsylvania 1939. History of the Association of American Railroads. 1954. *Pennsylvania.*

M. I. FOSTER, B.A. Miami 1950; M.A. 1951. Nature of the demand for electric light and power. 1953. *Florida.*

PAUL J. GARFIELD, B.S. Wisconsin 1948; M.S. 1949. Recent developments in the regulation of public utilities in Wisconsin. 1954. *Wisconsin.*

WARREN S. GRAMM, B.A. Washington 1944; M.A. 1948. Electric power industry. 1955. *California.*

MOHAMED A. KATABI, B.B.A. Beirut 1948; M.A. Cincinnati 1950. Economic importance of oil pipelines in the Middle East. *American.*

CHARLES E. MILLER, JR., B.S. Pennsylvania 1943; M.B.A. 1947. Study of anthracite sales and rates on competing fuels to major markets. 1954. *Illinois.*

SIDNEY L. MILLER, JR., B.A. Stanford 1941; M.A. 1949. Economics of freight forwarding. 1953-54. *Pennsylvania.*

ROBERT D. PASHEK, B.A. Central Washington 1949; M.A. Iowa 1950. An economic analysis of freight forwarding industries. 1954. *Illinois.*

EDWARD W. SMYKAY, B.S. Rutgers 1948; M.S. Maine 1952. The National Association of Railway and Public Utility Commissioners as the originators and promoters of public policy for public utilities. 1955. *Wisconsin.*

CHARLES M. WINSTON, B.A. Minnesota 1941. The performance and regulation of electric power utilities in Missouri. 1954. *Yale.*

WALLACE O. YODER, B.S. Iowa 1928; M.A. 1929. The problem of the Railway Express Co. 1954. *Indiana.*

Industry Studies

Degrees Conferred

FREDERICK E. BALDERSTON, Ph.D. Princeton 1953. Scale, vertical integration and costs in residential construction firms.

PAUL W. COOK, JR., Ph.D. Chicago 1952. The economic basis and effect of the development of synthetic liquid fuel processes.

LESLIE COOKENBOO, JR., Ph.D. Massachusetts Institute of Technology 1953. Economies of scale in the operation of crude oil pipe lines.

JOHN S. EWING, D.C.S. Harvard 1953. The history of the Bigelow-Sanford Carpet Company, Incorporated, from 1914-1951.

ROBERT W. HAIGH, D.C.S. Harvard 1953. The participation of the small refiner in the oil industry.

MARY LEE M. INGBAR, Ph.D. Harvard 1953. The factors underlying the relationship between cost and price: a case study of a textile firm.

JOHN V. KRUTILLA, Ph.D. Harvard 1953. The structure of costs and regional advantage in primary aluminum production.

OSCAR W. MAIN, Ph.D. Toronto 1953. The Canadian nickel industry 1885-1939.

WILLIAM MCK. MERRILL, Ph.D. Illinois 1953. Economics of the Southern smokeless coals.

GERTRUDE G. SCHROEDER, Ph.D. Johns Hopkins 1953. The growth of the major basic steel companies, 1900-1948.

Theses in Preparation

KENNETH O. ALEXANDER, B.A. Michigan 1949. Extent of pattern bargaining in autos and parts. 1954. *Massachusetts Institute of Technology.*

PAUL H. BANNER, B.A. Michigan 1941; M.P.A. Harvard 1951. Competition in the automobile industry. 1953. *Harvard.*

GORDON K. DOUGLASS, B.A. Pomona 1950. Some monopolistically competitive aspects of American moving pictures in international trade. 1954. *Massachusetts Institute of Technology.*

VIRGINIA G. FLAGG, B.A. California (Los Angeles) 1947. Innovations and the business cycle: a case study of the automobile industry. 1955. *California.*

ALFRED O. GINKEL, B.A. Rochester 1944; M.S. 1946. Invention and innovation in the graphic arts industry, 1930-1950. 1954. *Massachusetts Institute of Technology.*

GERALD GOLD, B.S. City (New York) 1948; M.A. Washington 1949. Economic analysis of fats and oils industry in the United States. 1955. *Columbia.*

LELAND S. LIANG, B.T.E. Lowell Textile Institute 1942; B.A. Harvard 1943. Problems of the cotton manufacturer in China. 1954. *Pennsylvania.*

Eugene W. Schooler, B.S. Fort Hays Kansas State 1943; M.B.A. Kansas 1948. Petrochemicals industry. 1954. *Harvard.*

Jacques J. Singer, B.S. New York 1950. Technological development and vertical integration in the iron and steel industry. 1954. *Massachusetts Institute of Technology.*

John S. Wright, Ph.B. North Dakota 1942; M.B.A. Southern California 1949. The development of policies affecting the marketing operations of the Jewel Tea Company Inc. 1901-1951. 1954. *Ohio State.*

Land Economics; Agricultural Economics; Economic Geography

Degrees Conferred

Walton Anderson, Ph.D. Chicago 1952. The efficiency of British Columbian and Canadian agriculture.

Chester B. Baker, Ph.D. California 1953. Government participation in the supply of short-term credit for agriculture.

James W. Birkhead, Ph.D. Harvard 1953. Capital and labor use on tobacco-cotton farms in the Carolinas.

Charles Bishop, Ph.D. Chicago 1952. Unemployment of labor in agriculture: Southeastern United States.

Arnold Brekke, Ph.D. Minnesota 1952. Development of agricultural policy.

David W. Carr, Ph.D. Harvard 1953. The economics of preparing wool for market and manufacture.

Emery N. Castle, Ph.D. Iowa (Ames) 1952. Adaptation of the farm firm in Western Kansas to conditions of uncertainty.

Robert I-Nien Chien, Ph.D. Minnesota 1953. A study of tung oil price and its demand.

William Darcovich, Ph.D. Iowa (Ames) 1952. Application of expectation models to livestock products.

Abdel H. F. El-Attar, Ph.D. Iowa (Ames) 1952. Yield and price expectations for primary agricultural production.

Irving Fellows, Ph.D. Iowa (Ames) 1952. Returns to scale in potato farming.

Alan S. Goldman, Ph.D. Iowa (Ames) 1953. Efficiency of marketing eggs in Des Moines.

Roger W. Gray, Ph.D. Minnesota 1952. An economic analysis of the impact of the price support program upon the development of the potato industry in the United States.

Gustav R. Gregory, Ph.D. California 1953. Developing economic growth goals for forest production.

Kenneth R. Grubbs, Ph.D. Texas 1953. Patterns of agricultural development in the western cross timbers region of Texas during the last century.

Peggy Heim, Ph.D. Columbia 1953. Financial aspects of federal irrigation, 1902 to 1930, with emphasis upon the development of repayment policy.

Royer B. Held, Ph.D. Iowa (Ames) 1953. Overcoming obstacles to soil erosion control in Western Iowa.

William E. Hendrix, Ph.D. Wisconsin 1953. Achievement of farm ownership by tenants and share-croppers in the Piedmont in Georgia.

Melvin R. Janssen, Ph.D. Harvard 1953. Integration of capital and labor on cash grain markets.

Saul M. Katz, Ph.D. Harvard 1953. Western European agricultural policy in the light of contemporary economic trends.

JOHN A. KINCANNON, Ph.D. Texas A. & M. 1952. An economic analysis of the Texas swine industry.

DALE A. KNIGHT, Ph.D. Chicago 1952. Selected agricultural problematic production situations.

STANLEY KRAUSE, Ph.D. Minnesota 1952. The marketing and pricing of Minnesota creamery butter.

JOHN M. KUHLMAN, Ph.D. Wisconsin 1953. The problem of regional development in the Wisconsin headwaters country.

GORDON D. MACDONALD, Ph.D. New York 1952. A community study of Yorkville (Upper East Side Manhattan, New York).

R. M. MACINTOSH, Ph.D. McGill 1952. The finance of housing in Great Britain, 1919-49.

WILLIAM H. MIERNYK, Ph.D. Harvard 1953. Labor cost and labor supply as determinants of industrial location.

CHARLES MOELLER, Ph.D. New York 1953. The secondary market for home mortgages in the United States: 1925-1952.

JAMES M. NIELSON, Ph.D. Harvard 1953. Application of the budget method in farm planning.

HOWARD W. OTTOSON, Ph.D. Iowa (Ames) 1952. Economics of forage production and utilization in Dakota and Dixon counties, Nebraska.

MAURICE F. PERKINS, Ph.D. Harvard 1953. Long-trend and intermediate fluctuations in raw materials prices and production.

CHESTER E. PETERS, Ph.D. Wisconsin 1953. An analysis of land use programming in Northern Wisconsin.

EVERETT E. PETERSON, Ph.D. Chicago 1952. Administered pricing of fluid milk.

CHESTER A. RAPKIN, Ph.D. Columbia 1953. An approach to the study of the movement of persons and goods in urban areas.

JOHN C. REDMAN, Ph.D. Kentucky 1951. Economic considerations of grain-roughage substitution in feeding for milk production.

JACK D. ROGERS, Ph.D. Massachusetts Institute of Technology 1953. Flexibility in the housebuilding industry: the San Francisco Bay area case.

B. A. ROGGE, Ph.D. Northwestern 1953. Wage policy and the location of industry.

WALDO S. ROWAN, Ph.D. Wisconsin 1953. Marketing and pricing practices in the Georgia broiler industry.

SOLOMON SINCLAIR, Ph.D. Minnesota 1953. The role of subsidies in farm mortgage credit.

VERNON L. SORENSON, Ph.D. Minnesota 1953. A study of the nature and cost of government programs affecting potatoes and their impact on inter-market relationships.

GEORGE P. SUMMERS, Ph.D. Minnesota 1953. An economic study of the price support and control program for burley tobacco.

WILBUR R. THOMPSON, Ph.D. Michigan 1953. The measurement of industry locational patterns.

ARTHUR E. WARNER, D.C.S. Indiana 1953. Financing construction of prefabricated houses.

FRED H. WIEGMANN, Ph.D. Iowa (Ames) 1953. Comparison of costs of service and self-service methods of selling meat in retail food stores.

Theses in Preparation

MAURICE C. BENEWITZ, B.A. Harvard 1947. Economic factors in geographical migration to St. Paul, Minnesota, 1940-1950. 1953. *Minnesota.*

JOHN T. BENNETT, B.A. Harvard 1950; M.S. California 1952. Economic analysis of marketing agreements in the cling peach industry. 1954. *California.*

NORRIS A. BLEYHL, B.A. Nebraska 1936; M.A. Minnesota 1947. History of the California rice industry. 1954. *Minnesota.*

JOHN A. BOAN, B.A. Saskatchewan 1948. Risks and uncertainty in agriculture and the effects on productivity with special emphasis on entrepreneurial uncertainty of preferences. 1953. *Ohio State.*

JAMES N. BOLES, B.A. San Diego State 1948; M.S. California 1951. Cost relationships in evaporated milk plants. 1954. *California.*

TED R. BRANNEN, B.S. Arkansas 1944; M.S. 1947. History of nature and disposition of the agricultural "surplus" problem. 1954. *Texas.*

NORMAN V. BRECKNER, B.A. Washington 1947; M.A. 1949. Estimation of an agricultural investment function. 1954. *Chicago.*

C. CURTIS CABLE, JR., B.S. Oklahoma A. and M. 1948; M.S. 1949. Economic analysis of fluid milk distribution in small communities in Minnesota. 1954. *Minnesota.*

GORDON J. DOBSON, B.S. Saskatchewan 1948; M.S. Ohio State 1949. The use of intergovernmental agreements in the marketing of agricultural commodities, with particular reference to the International Wheat Agreement of 1949. 1953. *Ohio State.*

D. K. FAIRBAIRNS, B.S. McGill 1949. Foundations for agricultural policy: political pressure and economic theory as guides to the policy maker—some lessons from the controversy over the Corn Laws. 1953. *McGill.*

MERRILL M. GAFFNEY, B.A. Reed 1948. Land speculation as an obstacle to optimum land allocation. 1955. *California.*

ROBERT GUSTAFSON, B.S. Michigan 1940; M.A. Chicago 1951. The storage of grain to offset fluctuations in yield. 1954. *Chicago.*

IRVING J. HOCH, Ph.B. Chicago 1945; M.A. 1951. Estimation of production function parameters for agriculture. 1954. *Chicago.*

EDWARD B. HOGAN, B.A. San Jose State 1949; M.S. Wisconsin 1951. A study of oligopoly in the dairy supply industry. 1955. *Wisconsin.*

VERNON C. JOHNSON, B.S. Southern 1948; M.S. Wisconsin 1951. A survey of leasing practices in Wisconsin agriculture. 1954. *Wisconsin.*

DON KANEL, B.S. Wisconsin 1945; M.S. 1952. Appraisal of the theory of land tenure. 1954. *Wisconsin.*

LEON T. KENDALL, B.S. St. Vincent 1949; M.B.A. Indiana 1950. Criticisms of the Chicago Board of Trade, 1948-1952. 1954. *Indiana.*

BENOIT J-E LAVIGNE, B.A. Laval 1950; M.S. Wisconsin 1952. Measurement of labor productivity on Wisconsin farms. 1955. *Wisconsin.*

JERRY M. LAW, B.S. Louisiana State 1942; M.S. 1948. The development of a classification of market structures for agriculture. 1954. *Minnesota.*

J. ROBERT LINDSAY, B.A. North Carolina 1949. Oil refining and the future of the Gulf Coast. 1954. *Harvard.*

TRAVIS W. MANNING, B.S. Oklahoma A. and M. 1949; M.S. 1950. Economic aspects of the development of agricultural cooperatives in Minnesota. 1954. *Minnesota.*

FRANCIS B. MCCORMICK, B.S. Ohio State 1939; M.S. 1947. An analysis of the market news service for livestock and grain in Ohio, with special reference to the media of radio and daily newspapers. 1953. *Ohio State.*

GLEN H. MITCHELL, B.S. Ohio State 1949; M.S. 1951. Prepackaging of fruits and vegetables, with special emphasis on the Ohio apple industry. 1954. *Ohio State.*

ALEXANDER H. MORRISON, B.A. Virginia Military Institute 1939. The impact of industrialization on the economy of a rural area in Northern Virginia. 1954. *Virginia.*

E. NIEBYL, B.A. Vassar 1934. Housing in small communities. 1953. *McGill.*

WILLIAM G. O'REGAN, B.S. California 1949. A statistical analysis of the demand for oranges and orange products. 1953. *California.*

CHESTER E. PETERS, B.S. Kansas State 1947; M.S. 1950. Analysis of land use and resource development programs particularly illustrated by experience and needs of Marquette County, Wisconsin. 1954. *Wisconsin.*

W. GEORGE PINNELL, B.A. West Virginia 1950; M.A. 1951. A survey of the economic base of the Evansville, Indiana metropolitan area. 1954. *Indiana.*

ARTHUR PYNNONEN, B.S. Wisconsin State; M.S. Wisconsin 1951. An economic analysis of the postwar real estate market in Wisconsin. 1955. *Wisconsin.*

ALBERT H. SCHAAF, B.A. California (Los Angeles) 1946. Federal government real estate and housing credit policy. 1955. *California.*

SEYMOUR SMIDT, B.A. Chicago 1948. Regional location for carryover stocks of corn and wheat. 1954. *Chicago.*

PAUL F. TJENSVOLD, B.A. California 1928; M.A. Southern California 1947. The social and economic effects of changes in the forms of Arizona agriculture. 1955. *California.*

S. TRACHTENBERG, B.A. Manitoba 1942; M.A. Toronto 1943. Some aspects of the distribution of fishery products to North American markets with special reference to cost factors. 1953. *McGill.*

ABRAHAM M. WEISBLAT, B.A. New York 1940. Utilization of manpower on Wisconsin farms. 1953. *Wisconsin.*

HOWARD C. WILLIAMS, B.S. Savannah State 1942; M.S. Ohio State 1947. The elasticity of demand for beef and pork measured at the farm level. 1953. *Ohio State.*

Labor

Degrees Conferred

ROBERT J. AGNEW, Ph.D. Massachusetts Institute of Technology 1953. Diesel-electric locomotive and railway employees.

ROBERT L. ARONSON, Ph.D. Princeton 1953. Job modifications and collective bargaining in the mass-production industries.

FRANCIS D. BARRETT, Ph.D. Massachusetts Institute of Technology 1953. Ecological analysis of the national and Catholic labor movement in Quebec.

EDWIN F. BEAL, Ph.D. Cornell 1953. Origins of codetermination in Western Germany *(Mitbestimmung).*

HOWARD A. BRIDGMAN, Ph.D. Harvard 1953. Some patterns in absenteeism.

PHILIP A. BROOKS, Ph.D. Columbia 1953. Multiple-industry unionism in Hawaii.

ROBERT B. BUCHELE, Ph.D. Chicago 1952. The contributions and limitations of job evaluation as a managerial device.

JOHN C. CABE, Ph.D. Illinois 1952. A critical examination of national labor policy in the settlement of labor disputes, 1945-1950.

Glenn M. Coleman, Ph.D. Pittsburgh 1952. The growth of management-labor understanding in the steel industry of Western Pennsylvania with special emphasis on job security and seniority.

William G. Dick, Ph.D. Nebraska 1953. The development of industrial relations: a case study.

Herman Gadon, Ph.D. Massachusetts Institute of Technology 1953. Arbitration and the meaning of the collective bargaining agreement.

Rush V. Greenslade, Ph.D. Chicago 1952. The economic effects of collective bargaining in bituminous coal industry.

Myron L. Joseph, Ph.D. Wisconsin 1953. The operation and effects of the Taft-Hartley law in the Pittsburgh district.

E. Douglas Kuhns, Ph.D. Syracuse 1952. The theoretical structures of the labor problems studies.

Rev. Edmund A. Kurth, Ph.D. Georgetown 1953. Codetermination in German Catholic thought.

Leonard Lecht, Ph.D. Columbia 1953. Experience under railway labor legislation.

Mitchell Locks, Ph.D. Chicago 1953. The effect of unionism on wages in a local labor market.

Val R. Lorwin, Ph.D. Cornell 1953. Trade unions in France.

Jeanne S. Pearlson, Ph.D. Harvard 1953. Equal pay for women; its development in the United States.

Lloyd F. Pierce, Ph.D. Wisconsin 1953. The activities of the American Association for Labor Legislation in behalf of social security and protective labor legislation.

Theodore W. Roesler, Ph.D. Wisconsin 1953. State-federal relations in labor legislation.

Hilda R. Rosenbloom, Ph.D. Harvard 1953. Selected issues in state temporary disability insurance; analysis of existing acts and study of a proposed Massachusetts program.

Sverre I. Scheldrup, Ph.D. Wisconsin 1953. The farmer-labor movement in Norway.

Robert C. Sedgwick, Ph.D. Syracuse 1953. Federal regulation of union unfair practices against employees.

Gordon S. Skinner, Ph.D. Wisconsin 1953. Experience rating in unemployment insurance, history, methods and operation.

Fred Slavick, Ph.D. Princeton 1953. The provision of disability and medical care insurance through collective bargaining—an analysis of ten programs.

Stephen P. Sobotka, Ph.D. Chicago 1952. The influence of unions on wages and earnings in the building construction industry.

Benjamin S. Stephansky, Ph.D. Wisconsin 1952. Collective bargaining in transition.

Mrs. Gene B. Tipton, Ph.D. California (Los Angeles) 1953. The labor movement in the Los Angeles area during the nineteen forties.

John J. Waeltermann, Ph.D. St. Louis 1953. A study of paid-vacation, paid-holiday, and shift-differential practices in the Saint Louis metropolitan area.

William B. Wait, Ph.D. Cornell 1952. An historical and comparative study of the development of California and New York minimum wage laws.

Kenneth F. Walker, Ph.D. Harvard 1953. Industrial relations in Australia.

Thomas L. Whisler, Ph.D. Chicago 1953. Merit rating: a management tool.

John C. Wounsch, Ph.D. Southern California 1953. The contribution of the Swedish labor movement 1940-1950 to industrial relations.

Theses in Preparation

Joe C. Ashby, B.S. North Texas State 1943; M.A. Texas 1950. The development of the Mexican labor movement under Cardenas. 1954. *Texas.*

James W. Bennett, B.A. Maryville 1949; M.S. Tennessee 1950. The Railway Labor act of 1926. 1953. *Florida.*

John V. Berg, M.A. Michigan 1947. The guaranteed annual wage and unemployment insurance: a comparison and evaluation. 1954. *Michigan.*

Melvin K. Bers, B.A. George Washington 1943; M.A. 1948. The nature of telephone unionism. 1954. *California.*

Gordon W. Bertram, B.A. British Columbia 1945. Industrial relations in the housing and construction industry, Northern California. 1955. *California.*

I. U. Z. Bhatty, B.A. Allahabad 1944; M.A. 1948. A comparative study of certain aspects of labour relations in the Tata Steel Co., India, and the Steel Co. of Canada. 1954. *Toronto.*

Jacob J. Blair, B.A. Cincinnati 1924; M.A. Pennsylvania 1929. Hourly rates in selected steel companies. *Pennsylvania.*

Marjorie S. Brookshire, B.A. Texas 1943; M.A. 1945. Employment of Latin Americans in Corpus Christi labor market area. 1954. *Texas.*

Kenneth Cameron, B.A. Harvard 1934. General economic program, organized labor in France, 1945-52. 1955. *California.*

Lien Chao, B.A. Hunan 1945; M.A. Minnesota 1950. Distinctive patterns of industrial relations in Korea. 1955. *Minnesota.*

Pao Lun Cheng, B.S. National Chiao-Tung 1944; M.A. Missouri 1949. Labor supply over the cycles. 1954. *Wisconsin.*

Charles Cogen, B.A. Cornell; LL.B. Fordham 1927. The right to a job. 1954. *Columbia.*

Robert P. Crisara, B.S. Cornell 1950. Environmental aspects of the Scanlon Plan. 1954. *Massachusetts Institute of Technology.*

Donald E. Cullen, B.A. Hobart 1947; M.S. Cornell 1949. The interindustry wage structure, 1899-1950. 1953. *Cornell.*

David J. Davies, M.S. Illinois 1947. Manpower problems in a defense economy. 1954. *Michigan.*

Carl F. Erbe, B.A. Iowa State Teachers 1949; M.A. Iowa 1950. A study of grievance procedure in industry. 1954. *Iowa.*

Merton W. Ertell, S.B.B.A. Buffalo 1938; M.B.A. 1949. The C.I.O. industry council plan—its background and implications. *Chicago.*

Harland G. Fox, B.A. Wabash 1948; M.A. Minnesota 1949. Directional patterns of inter-occupation mobility of men: St. Paul 1940-50. 1954. *Minnesota.*

Walter H. Franke, Jr., B.A. St. Olaf 1950; M.S. Wisconsin 1951. Employment opportunities of older people. 1955. *Wisconsin.*

William Goldner, B.A. Stanford 1937; M.A. California 1951. Influences on the wage structure of local labor markets. 1955. *California.*

Karl C. Gruen, B.S. *Louisville* 1950; M.S. Cornell 1952. A study of municipal mediation plans. 1954. *Cornell.*

Dale A. Henning, B.S. Pennsylvania 1948; M.S. 1949. Wage stabilization policies and problems: 1950-1952. 1954. *Illinois.*

Murray Herlihy, B.A. Alberta 1948; M.A. Chicago 1950. The determinants of the collective bargaining policies of the UAW-CIO in Canada. 1954. *Chicago.*

Irwin L. Herrnstadt, B.A. Columbia 1950. Consequences of economic change on textile union locals. 1954. *Massachusetts Institute of Technology.*

William G. Hosking, B.A. Hobart 1949; M.S. Cornell 1950. A case study of intercity wage rate differentials of building tradesmen. 1953. *Cornell.*

Singammal Iyengar, B.A. Madras 1936; M.A. 1945. Position of women workers in India. 1954. *Northwestern.*

Dudley W. Johnson, B.A. Pacific 1950. Use of escalator clause in trade union contracts. 1955. *Northwestern.*

Joseph Krislov, B.Ed. Ohio 1949; M.A. Western Reserve 1950. Representational and jurisdictional disputes in American labor unions. 1954. *Wisconsin.*

Daniel H. Kruger, B.A. Richmond 1949; M.A. Wisconsin 1951. Background and factors in the collective bargaining experience in Wisconsin. 1955. *Wisconsin.*

William O. Kuhl, B.A. Iowa State Teachers 1947; M.S. Wisconsin 1949. Recent changes in American labor's political methods. 1954. *Wisconsin.*

James W. Kuhn, B.A. Harvard 1949; M.A. Yale 1950. The impact of labor party affiliation upon trade unions' internal policies and procedures. 1953. *Yale.*

A. Matthew Lord, B.A. Brooklyn 1948; M.A. New York 1950. The bakery industry in New York City—a study of intra-industry patterns of labor relations. 1954. *New York.*

Richard M. Lyon, LL.B. Brooklyn Law 1950; M.S. Cornell 1952. Legal issues and governmental policy formation concerning agricultural migratory labor in the United States. 1953. *Cornell.*

Robert M. MacDonald, B.A. Yale 1950; M.A. 1951. Wage structure and the development of collective bargaining in the paper and pulp industry. 1953. *Yale.*

Zenon Malinowski, B.A. Yale 1939; M.B.A. Chicago 1948. Income of statisticians in the United States. 1954. *Chicago.*

Campbell McConnell, B.A. Cornell 1950; M.A. Illinois 1951. An analysis of economic theories of collective bargaining. 1953. *Iowa.*

Mrs. G. E. McKenzie, B.A. Wellesley 1945; M.A. Toronto 1951. Conditions of labour in Canada 1911-1940. 1954. *Toronto.*

Frank B. Miller, B.A. Reed 1943; M.S. Cornell 1949. Work teams in a small factory, internal and external adaptations to change. 1953. *Cornell.*

Grady L. Mullennix, B.S. North Texas State 1942; M.S. 1942. History of Texas State Federation of Labor. 1954. *Texas*

Frederic T. Neely, B.S. Virginia 1950; M.A. 1951. State legislative policies for the control of labor organizations. 1955. *Virginia.*

Monroe O. Newman, B.A. Antioch 1950. Temporary disability insurance. 1954. *Illinois.*

Arthur J. Noetzel, B.B.A. John Carroll 1938; M.B.A. Northwestern 1940. Management and the utilization of the older worker. 1953. *Michigan.*

Frances E. Oxley, B.A. Western Ontario 1949; M.A. Indiana 1950. The effects of unions upon wages. 1954. *Indiana.*

Wilbur F. Pillsbury, B.A. Dartmouth 1946; M.C.S. 1946. The use of corporate financial statements and related data by organized labor. 1954. *Indiana.*

Robert S. Polkinghorn, B.A. Colorado 1948. Wages and salaries in the United States compared regionally. 1954. *Chicago.*

Elton Rayack, B.A. George Washington 1949. Wage rates and earnings in the men's clothing industry. 1954. *Chicago.*

JANE C. RECORD, B.A. Georgia-Woman's 1936; M.A. North Carolina 1938. Union rivalry on the San Francisco waterfront. 1955. *California.*

THOMAS ROBERTS, B.A. Pennsylvania 1933; M.A. 1938. Industrial relations in the Philadelphia transit industry. 1955. *Pennsylvania.*

EDWARD ROSENBAUM, B.A. Wayne 1950; M.S. Wisconsin 1951. The rebirth of maritime unionism. 1954. *Wisconsin.*

BERNARD SCHURMAN, B.S.S. City (New York) 1939; M.A. Columbia 1947. History of railway labor relations to the role of emergency boards in railway labor disputes. 1954. *Columbia.*

DON ARTHUR SEASTONE, B.A. Denver 1949; M.A. 1950. Guaranteed wages and employment and their role in collective bargaining. 1954. *Oregon.*

ABRAHAM J. SIEGEL, B.A. City (New York) 1943; M.A. Columbia 1949. Worker ideology and industrialization, and international comparison. 1954. *California.*

FRANK L. SIMONETTI, B.S. Akron 1940; M.S. Boston 1941. Collective bargaining in relation to restriction of work in the rubber industry. 1954. *Indiana.*

MARJORIE T. STANLEY, B.A. Wisconsin 1949; M.A. Indiana 1950. From employee-employer to union—management relations: economic forces in the automobile industry. 1954. *Indiana.*

EDWARD SUSSNA, B.A. Brooklyn 1950; M.A. Illinois 1952. The 1952 steel strike. 1954. *Illinois.*

JAMES W. SWEENEY, B.S. Georgia School of Technology 1947; M.S. 1948. Incentive compensation aspects of the Scanlon plan. 1954. *Massachusetts Institute of Technology.*

ZACHARY TAYLOR, JR., B.A. North Carolina 1945. Manpower policies since 1945. 1954. *Illinois.*

ROBERT WEINTRAUB, B.A. Williams 1948. The factors underlying the migrations and adjustments of southerners employed in a Chicago automobile assembly plant. 1954. *Chicago.*

SAMUEL M. WILSON, B.A. Maryville 1946; M.B.A. Pennsylvania 1948. The development and operation of work measurement systems in the department of defense. 1954. *Pennsylvania.*

WILLIAM B. WOLF, B.A. California 1942; M.B.A. Northwestern 1945. An evaluation of wage incentive theory. *Chicago.*

Population; Social Welfare and Living Standards

Degrees Conferred

JULES JOSKOW, Ph.D. Columbia 1953. The health insurance plan of greater New York.

RICHARD H. OSTHEIMER, Ph.D. Columbia 1953. Student charges and financing higher education.

ROBERT W. PATERSON, Ph.D. Virginia 1953. The socio-economic structure of Virginia.

PAUL R. POFFENBERGER, Ph.D. American 1953. Problems of security for farmers in the United States with a case study on the extension of social security to farmers in Maryland.

MALCOLM S. TORGERSON, Ph.D. Nebraska 1953. An analysis of the development of old-age assistance in the United States.

Theses in Preparation

Harry E. Allison, B.S. Pennsylvania State 1949; M.S. 1950. Some aspects of the study of meat consumption. 1953. *Harvard.*

D. C. Corbett, B.A. Toronto 1948; M.A. 1949. Migration and Canadian development 1867—the present. 1953. *McGill.*

Peter de Janosi, M.A. Michigan 1951. Consumer economics in the international field. 1955. *Michigan.*

Catherine V. S. Peterson, B.A. Hunter 1946; M.A. Yale 1947. A market analysis of the medical profession. 1954. *Yale.*

VACANCIES AND APPLICATIONS

The Association is glad to render service to applicants who wish to make known their availability for positions in the field of economics and to administrative officers of colleges and universities and to others who are seeking to fill vacancies.

The officers of the Association take no responsibility for making a selection among the applicants or following up the results. The Secretary's Office will merely afford a central point for clearing inquiries; and the *Review* will publish in this section brief description of vacancies announced and of applications submitted (with necessary editorial changes). Since the Association has no other way of knowing whether or not this section is performing a real service, the Secretary would appreciate receiving notification of appointments made as a result of these announcements. It is optional with those submitting such announcements to publish name and address or to use a key number. Deadlines for the four issues of the *Review* are February 1, May 1, August 1, and November 1.

Communications should be addressed to: The Secretary, American Economic Association, Northwestern University, Evanston, Illinois.

Vacancies

Research in economic security: National organization located in Chicago seeks person with wide research background and knowledge of survey work, preferably with some experience in conducting meetings and educational programs. P158

Economic analyst: Well-known national organization doing long-range economic study work on national business problems desires trained research economist with writing ability. Location, Chicago. Give personal qualifications, including education, job experience, and salary record. Replies will be held in strict confidence. P159

Security analyst and portfolio manager: Investment counsel company with head office in New York City wishes a man or woman with an economics background and an interest in securities to train for permanent position as security analyst and portfolio manager. P160

Economists: The TVA Fuels Economics Section of the Division of Power Supply is accepting applications for certain positions. This Section is responsible for forecasting fuel requirements (principally coal), analyzing costs of fuel and forecasting changes in such costs, recommending size and timing of invitations for bids, nature and term of contracts, provisions for cancellation, escalation, etc., and analyzing comparative coal transportation costs. Salaries range from $3,875 to $7,500 per annum, depending upon academic training and actual experience. Write to W. Sherrill Milliken, TVA, Chattanooga Personnel Office, Chattanooga, Tennessee.

Economist—Chicago area: Suitable training and experience to testify as an expert witness on value in condemnation proceedings of two-flat building. Retainer, $40.00 a day. P161

Economists Available for Positions

Accounting, applied economics, business administration: Woman, Ph.D., C.P.A. Professor of business administration seeks university professorial or research appointment; extensive experience and publications. Would consider research post in foundation or company. Available in January, 1954. E109

Current business analysis, economic forecasting, business cycles, market research, national income and product analysis: Man, 36, married, M.A., Ph.D. requirements nearly completed. Ten years of experience in analysis of current economic developments and in forecasting; 5 years as economic analyst-writer on staff of nationally known business magazine; brief university teaching experience in current economic problems but qualified to teach business cycles, money and banking, fiscal policy and related fields. Desires research-analysis or teaching position. E224

Principles, value and distribution, history of thought, cycles, government and business, public utilities, systems, public finance, corporate finance: Man, 32, married, B.A., M.A., Toronto, Ph.D., Wisconsin. Teaching since 1946; broad occupational and background experience; veteran; fellowships; articles in preparation; active in Y.M.C.A. Available immediately. E332

Economic analysis, money and banking, public finance, business cycles, international economics, statistics: Man, 32, Ph.D., Harvard. Four years of teaching at large Midwestern universities; 2 years as government economist in Washington and in field. Seeks teaching or research position. Available immediately. E354

Labor problems, trade unionism, economic principles, economic analysis, social security: Man, 30, married, M.A., Ph.D. residence and written examination completed. Some business experience; 2 years as government economist; now teaching at large Eastern college. Desires change for financial and professional advancement. E429

Labor, comparative economic systems, current economic problems, economic history, economic and social thought, money and banking, public finance, international trade, personnel and manpower policy: Man, 37, married, M.A., and Ph.D. residence completed at Columbia University. Six years of teaching economics and social science as well as background in adult education; 3 years as editor and research director in the book publishing and public relations field dealing with labor relations; 3 years of personnel and industrial relations work in industry; market and opinion research experience. Interested in teaching, research, writing, editorial and/or administrative positions. E434

Economic principles, business cycles, public utilities, transportation: Man, Ph.D., California. Broad experience in teaching and as economist with nationally known corporation. Available in September, 1953. E436

Business law, social control of business, history of economic thought: Man, 37, Ph.D., LL.B. Experienced, effective teacher; publications. Available in September, 1953. E439

Economic geography, economic history, economic policy, international trade, industry (especially location) studies, economic development, European, Asian, African affairs: Man, 38, married, Ph.D. Six years of graduate and undergraduate teaching experience; also research and writing; now teaching in Eastern university. E462

Economics, banking, investments: Man, 29, B.S., M.A. Five years of experience in bank supervisory agency. Desires position with financial institution in research or investments; also interested in teaching position. E463

International trade, economic analysis, business cycles, money and banking: Man, 33, married, M.A., Ohio State University. Four years of experience in analysis and research with government agencies. Seeks position as teacher, consultant, or economic analyst. Available immediately. E465

International economics, trade and banking, European area specialist: Man, married, LL.D., Ph.D. Resident in Canada for three years; willing to relocate. Experience in diplomatic and civil service, top-level international finance, industry, particularly export-import field, research, writing, broadcasting, lecturing. Seeks teaching or research position. E471

Marketing, statistics, banking and finance, business research: Man, 31, M.B.A.; Ph.D. residence and examinations completed. Three years of teaching experience. Presently with consulting firm. Interested in college or university position in teaching and/or research; prefers Midwest. Can be available in September, 1953. E475

Housing, urban redevelopment, urban land economics, market analysis, economic principles, economic thought, money and banking: Man, 36, married, course work completed for Ph.D. Publications and acknowledgments; 14 years of government and private experience in operations and research in housing economics and finance; 3 years of urban redevelopment and market analysis studies; economic base techniques; industrial location and development. Available in September, 1953, for academic or nonacademic position. E477

Economic analysis, labor, prices, marketing research: Man, 33, married. Seven years of government economic analysis, prices, cost-of-living, labor; graduate of Sears, Roebuck executive trainee program, department manager; experience at national wholesale level; part-time college teaching; extensive survey experience; 3 years on board of directors of retail food co-operative and regional wholesale. Desires economic analysis, marketing research, or manufacturers' representative position. E478

Economic principles, economic history, economic thought, labor economics, comparative systems, public finance, price and price policies: Man, A.M., Northwestern, Ph.D., Yale. Eighteen years of teaching experience; research in economic history; volume on regional agricultural and population problems completed; economics experience as section chief in government service; private business and industrial background for 8 years. Available in September, 1953. E479

Money and banking, Far Eastern finance: Man, 46, married, M.A., Benares University, M.Sc.Econ., London School of Economics. Over 20 years of experience in universities, central bank, and government; publications on Far Eastern currency and banking systems. Foreign national, now in U.S. on government assignment; available for about a year from December, 1953, for position as university teacher in the U.S. E480

Industrial economics, international trade, economic policy, international relations and economics, foreign markets: Man, 51, married, European studies. Practical experience in responsible positions in industry, organization and control, foreign trade, trasportation, economic investigations and statistics; specialized in agricultural and food industry. Offers his 30 years of experience, together with command of several languages and knowledge of foreign countries, both in Europe and America. Seeks position in industry, economic research, control or investigations, and/or teaching. E481

Labor, statistics, economic principles, money and banking, international trade: Woman, 34, B.S., M.I.T., M.A., Ph.D., Radcliffe College. Experience in teaching, economic research, and statistics. Interested in teaching position or job with research and writing opportunity. Available immediately. E482

Market research, acounting, statistics, economic principles, problems, social security, labor problems: Man, 33, married, B.A., M.A., Ph.D. course requirements completed. Five years of experience with nationally-known business management and market research organizations; 3 years as government price economist. Desires operating or research position with manufacturer, distributor, or trade association. E483

Money and banking, international economics, statistics, economic theory, history of thought, labor economics, public finance: Man, 28, B.A., M.A. in economics, preliminary examinations and residence completed for Ph.D., University of Chicago. Experience in teaching and research. Desires economic or investment analyst position with financial or other business institution and/or teaching position. Available immediately. E484

Economic and statistical research, business cycles, international trade, economic history: Man, 26, married, B.A., all course requirements for M.A., thesis on theoretical development of an underdeveloped country to be completed October, 1953. One and a half years with National Bureau of Economic Research; experience in export-import field; extensive knowledge of Europe and the Middle East, including fluent reading, writing, and speaking of French, Russian, and Spanish. Seeks position with firm in need of economic research analyst. E485

Economic theory, economic history, economic and social thought, international economics, public finance, business economics: Man, 37, married, Ph.D., June, 1953. Two years of teaching experience; college and research librarian; research, military, government, and business administrative work. Currently employed in profit research. Location no problem. Salary secondary to opportunity. Available in fall, 1953. E486

Finance, labor economics, money and banking, theory: Man, 31, married, B.A. equivalent, University of Chicago, M.B.A., University of Denver, Ph.D. thesis in preparation, University of Colorado. Two years of teaching at Universities of Colorado and Denver. Desires teaching position. Available immediately. E487

Marketing, economics, industrial relations: Man, 33, B.S., M.B.A., course requirements completed for Ph.D. in business administration. Business experience. Interested in teaching or research position. Available immediately. E488

THE O'SULLIVANS AT HOME. Clarence M. O'Sullivan, construction foreman with thirty-four years' experience; daughter-in-law Marilyn, clerical assistant for five years, and Mr. O'Sullivan's sons: Don, a telephone installer with seven years' service, and Clarence C., cable repairman with thirteen years' service.

AMERICAN ECONOMIC REVIEW

VOL. XLIII, No. 4 PART 2 SEPTEMBER, 1953

SUPPLEMENT

GRADUATE EDUCATION IN ECONOMICS

By HOWARD R. BOWEN

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PREFACE

In the United States today several thousand persons of varied backgrounds and interests are serving in capacities in which they are referred to as "economists." This number is steadily growing. Individually, many economists are in positions of great influence. Collectively, they occupy an important place in our society as formulators of economic ideas, as interpreters of events, as consultants on public and private policy, as administrators, and as teachers.

In view of the increasing importance of economists in American society, it is appropriate that the recognized professional association in this field, the American Economic Association, should sponsor a study of the economic profession—a study to provide information on the activities of economists and on the recruitment and training of future members of the profession.

This study was conceived as an outgrowth of an earlier investigation conducted by a committee of the Association under the general chairmanship of Professor Horace Taylor of Columbia University. The earlier study, which was confined to education in economics at the undergraduate level, resulted in a report, "The Teaching of Undergraduate Economics," *American Economic Review* (Supplement), December, 1950. As this report was nearing completion, the Executive Committee of the Association appointed an *ad hoc* committee to consider the feasibility of a study of education in economics at the graduate level. The members of this group were G. L. Bach of the Carnegie Institute of Technology, Milton Friedman of the University of Chicago, I. L. Sharfman of the University of Michigan, and J. J. Spengler of Duke University. D. Gale Johnson of the University of Chicago served for a time during the absence of Prof. Friedman. This *ad hoc* committee reported favorably on the project. The Executive committee then submitted a proposal to the Rockefeller Foundation for a grant to finance the study. The grant was approved and the present study was undertaken during the academic year 1951-52.

Under the agreed plan, the Association has served as sponsor and publisher of the study, but has not attempted to give official sanction to the report or to the recommendations contained therein. The study has been carried on under my direction and I am solely responsible for the conclusions and recommendations.

This is a document based upon observations and facts selected and interpreted by one person who spent the greater part of a year thinking

about the subject, collecting data, and talking with interested people. It is in no sense a report of a committee or of any broadly representative group of economists. However, in the preparation of the report, I consulted widely and was influenced by the opinions, judgments, and criticisms of many persons—especially the members of the *ad hoc* committee.

The objectives of the study have been to describe the role of economists in American life, to survey present practices in the recruitment and training of economists, to clarify the objectives of graduate education in economics, to consider standards, and to offer recommendations toward improving graduate training and increasing the usefulness of the profession. These ambitious objectives have not, of course, been fully achieved. I hope, however, that a useful beginning has been made and that the study will stimulate further and continuing discussion of the many issues considered and recommendations offered.

In general, the recommendations are of a modest sort—looking toward gradual evolution rather than sweeping reform. My observation of present practices and trends in the education of economists has led to the view that on the whole a good job is being done, and that revolutionary changes would not be desirable even if they were possible. Present conditions in the education of economists bear little resemblance to those in medical education as reported by Abraham Flexner in his famous and influential report of 1910.[1]

I found no examples of shoddy graduate education in economics and I can make no "shocking" revelations. On the other hand, I found no examples of smug complacency among graduate faculties of economics. I was impressed by the prevailing spirit of critical self-examination and of earnest endeavor to strengthen educational programs.

There are, of course, substantial differences among the various graduate departments of economics not only in their practices, but even in their objectives. In view of such differences, there was always the temptation to suggest that all departments should conform to one's own conception of the ideal. I have resisted this temptation because it has seemed to me that up to a point there is great virtue in diversity and in division of labor, and that to advocate uniformity would be both unwise and fruitless. Therefore, I have not attempted to lay down rigid standards or to define the content of a "good" educational program in great detail. But I have tried to face the question of what knowledge and abilities economists should have in common, and thus to consider what is the irreducible minimum in the program of edu-

[1] *Medical Education in the United States and Canada*, A report to the Carnegie Foundation for the Advancement of Teaching, Bulletin No. 4, New York, 1910.

cation for persons who are to be entitled to call themselves "economists." Moreover, my recommendations are intended as general suggestions to be applicable in different degrees and in different ways to different departments. My feeling is that each department must interpret these recommendations in the light of its own role, its own objectives, and its own unique history.

In defining the scope of economics for purposes of this study, I have not attempted to differentiate sharply between "economics" and the several sub-fields which have splintered off from it and the several disciplines which at some point are tangential to it. I have leaned toward a broader rather than narrower definition of the field, and have considered explicitly the relationships among the various sub-fields and related disciplines.

Similarly, I have not attempted to distinguish sharply between those matters which are common to all fields of graduate education and those which are peculiar to economics. I have avoided this partly because I was unable to make the distinction clearly and partly because I thought it useful to consider the rules, procedures and standards of graduate schools as applied specifically to the field of economics.

The study is based largely upon three sources: (1) published literature, (2) questionnaires, and (3) personal interviews. I should add that some of my own experience as student, teacher, and administrator has doubtless found its way into the report.

The published literature in the field is not large. Useful studies and reports on graduate education have been issued by the American Council on Education, U. S. Office of Education, Association of American Universities, Social Science Research Council, and other agencies. Several professional societies, notably the American Chemical Society and the American Political Science Association, have issued reports based on studies made by their committees. And a considerable volume of research on the demand for and supply of trained professional talent has been in progress at the National Research Council, American Council of Learned Societies, and the Commission on Human Resources and Advanced Training.

Separate questionnaires were sent to the following classes of respondents: chairmen of graduate departments of economics; professors of economics; graduate students who received advanced degrees in economics in 1939-40 and 1949-50; graduate students in residence in 1952-53; and employers of economists in colleges, government, and business. Titles and brief descriptions of the questionnaires and the number mailed and returned are shown in the appendix. In the text, whenever data derived from the questionnaires are presented, the source is cited by reference to the schedule number and the number of

respondents. The nature of the source can then be ascertained by consulting the Appendix.

Since the object of the questionnaires was primarily to obtain opinions and judgments from a broad range of institutions and individuals rather than to obtain precise quantitative estimates, no attempt was made to utilize refined sampling procedures or to adjust the results for non-response. The returns from each questionnaire, however, were widely dispersed with respect to geographic area, type of institution, and specialty of respondent. Moreover, the subjects included in the questionnaires were also frequently covered in personal interviews. I believe, therefore, that a reliable record of the range and variety of opinion and practice has been obtained—even though a precise estimate of the prevalence of any given opinion or practice is not always possible. Some of the questionnaires were long and difficult. I am deeply indebted to the hundreds of economists who expressed their genuine interest in the study by filling out the questionnaires so informatively.

In the course of the study I conducted personal interviews with 250 professors, heads of departments, and graduate deans at 30 universities located in all parts of the country. I regret that I was unable to visit all of the institutions (perhaps 135) offering graduate work in economics. I did try to include a cross-sectional sample of the entire group of institutions and also to visit those having unique or unusual features in their graduate programs. At every institution which I was privileged to visit, faculty members and administrative officials gave unstintingly of their time and advice. I also conducted numerous interviews with government officials, graduate students, former graduate students, business economists, and others.

I regret that I can name only a few of the several hundred persons who contributed significantly to this study. I should like to acknowledge especially the assistance and advice offered by: Frank H. Knight, John H. Williams, Harold A. Innis, and Calvin B. Hoover, the four successive Presidents of the American Economic Association who served during the period of the study; the members of the executive committee of the Association; the members of the *ad hoc* advisory committee for the study; James Washington Bell, the efficient secretary of the Association; and Horace Taylor, chairman of the earlier study on undergraduate education in economics. The following persons offered many valuable suggestions or reviewed sections of the manuscript: F. M. Boddy, Lois S. Bowen, O. H. Brownlee, Malcolm M. Davisson, Dudley Dillard, James S. Earley, J. K. Galbraith, Claude E. Hawley, R. B. Heflebower, Walter E. Hoadley, G. V. Lannholm, Mary Lois Lucas, John Perry Miller, Paul A. Samuelson, Edward S. Shaw, Carl S. Shoup, Elbridge Sibley, J. F. Wellemeyer, Paul Webbink, Dael Wolfle, and

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A special word of appreciation is due the Rockefeller Foundation for its generous financial support of the project and to Dr. Joseph H. Willitts of that Foundation who was most helpful in the organization of the study.

Williamstown, Massachusetts HOWARD R. BOWEN
April 1953

CONTENTS

TABLES

Chapter 1

CONCLUSIONS AND RECOMMENDATIONS

In this chapter I shall try to draw together concisely the principal conclusions and recommendations emerging from the study. In subsequent chapters, these are developed in detail, with supporting data, arguments, and qualifications. They are presented here to provide a convenient summary of the entire study.

The Profession (Chapters 2 and 3). In the United States today there are perhaps 13,000 persons serving as economists. This is a very rough estimate because there are no well-established criteria for distinguishing economists from others. With various conceivable criteria, the number might be as low as 4,000 or as high as 20,000. The group of persons called "economists" (regardless of how that term is defined) are a heterogeneous group including persons of widely varied backgrounds and interests. They are employed primarily in higher education, government, and business. Employment in government has increased greatly in recent decades. Employment in private business, though still small in the aggregate, is steadily increasing. Today, many departments of economics in private corporations compare favorably —in staff and budgets—with many college and university departments.

The salaries of most economists are within the range of \$3,000 to \$12,000. Limited data suggest that salaries are higher in business and government than in higher education. However, when allowance is made for the shorter work year of college teachers and for their opportunity to obtain outside compensation, it is not clear that the difference is marked.

The market for economists (at prevailing salaries) has for many years been brisk. There is little evidence that economists have encountered serious placement difficulty. On the other hand, there is no severe "shortage" of economists (at prevailing salary scales), such as is reputed to exist for physical scientists and engineers.

In a recent study of the status of various occupations, as judged by a cross-sectional sample of the American public, economists stood well below *all* the other learned professions covered by the study.

Objectives and Standards in Graduate Education (Chapter 4). The profession is apparently in rather general agreement on objectives and standards for graduate education in economics. There is considerable uniformity in the *formal* standards and objectives operative at various universities. Variations in standards are probably due as much to differences in quality of students admitted as to any other factor.

From the point of view of students, the principal objective of graduate study in economics is to prepare for a career. For them it is professional education. Most students are looking to careers in education, government, and business in which technical knowledge of economics will be useful. These objectives correspond approximately to the actual employment of graduate students after completing their studies.

From the point of view of many graduate professors, the principal objective is to produce "scholars." This objective is not regarded, however, as inconsistent with the vocational objective of students. Most graduate professors and other economists feel that the best preparation for professional work in economics consists of education oriented toward scholarship. Even though employment opportunities of economists are expanding into new fields, their formal education should continue to place emphasis on fundamentals and on scholarship. Graduate departments of economics should resist any temptation to convert into trade schools. This means, among other things, that there should be a solid "common core" for all students who are to be awarded advanced degrees in economics—regardless of their specific career objectives. There can be diversity among universities and diversity in the programs of individual students at given universities; but this should not be at the expense of the basic nucleus of substance and technique which should bind the profession together and which should enable economists of all types and persuasions to communicate with one another.

Proposed specific standards for the Ph.D. and the master's degree are presented in summary form on pp. 42-52 and 60-62. There is no need to reproduce them here. The reader is urged to refer to these summaries because they represent the very heart of this report.

The master's degree has fallen into fairly low estate at many institutions and should be upgraded. Students may legitimately study educational methods or technical specialities within economics as preparation for specific vocations; but they should not receive the master's degree in *economics* without completing a basic and relatively non-specialized program involving substantial knowledge of the field, a thesis or its equivalent, and a level of professional competence as an economist. The master's degree (with a thesis) should be taken by most students who later go on to the doctorate.

Recruitment and Selection of Students (Chapters 5 and 6). In recent years, graduate departments of economics have drawn students whose average ability (as measured by tests and college grades) is about equal to the average of all graduate students. The average ability of economics students is lower than that of students in some of the physical sciences and higher than that of students in some of the

less "academic" fields such as fine arts, physical education, home economics, and social work. While current quantitative demands for economists probably do not justify the recruitment of larger numbers into the field, it would be desirable to recruit more students of high quality.

Students make their decisions to enter graduate study in economics relatively late. Only about a third of those in graduate study had decided before their senior years and only two-thirds had decided prior to graduation from college. Recruitment is primarily a function of the undergraduate colleges. Undergraduate departments of economics should help their students become aware of the fact that there is a profession of economics and that it offers wide and varied career opportunities. Students often have direct acquaintance with law, medicine, business, agriculture, and even with chemistry, physics, and engineering. But they are unlikely to know about economics as a profession unless conscious efforts are made to provide information on this subject. Special attention should be given to the counselling of superior students who have elected economics as an undergraduate major. Graduate departments should have more scholarships for *first-year* graduate students, and they should actively seek out superior talent.

Because of difficulties in predicting the success of individual students in graduate school, and because the pressure on enrollment is usually not great, most institutions will be well-advised to adopt a relatively lenient admissions policy combined with a rigorous and prompt weeding out of unsuitable students. Only at those few institutions at which demands for admission exceed reasonable capacity will a rigorous admissions policy be indicated.

Undergraduate offerings in economics vary widely from one institution to another. Moreover, one-third of all graduate students in economics majored in some other field as undergraduates. Therefore, graduate students in economics have very uneven backgrounds. As a result there is a tendency in graduate departments to assume that students start their graduate careers with little useable knowledge of economics and with little common experience in other fields. This situation is unwholesome. Firm but gradual action should be taken to stiffen substantive admission requirements and prerequisites. The profession should work toward the formulation of minimal standards for the content of the undergraduate major and toward the requirements of the equivalent of this major for admission to graduate study in economics. An applicant should be prepared at the undergraduate level in at least principles of economics, elementary statistics, money and banking, intermediate economic theory, and in one or two other fields of economics. He should have a knowledge of mathematics through

calculus and a rudimentary knowledge of the major concepts of accountancy.

Greater use of tests is recommended in connection with admissions. Tests are useful (a) as a basis for deciding on the admission of particular students, (b) as a basis for counselling, identifying deficiencies, and later appraisal of the student, and (c) as a method of determining the quality of an institution's applicants in comparison with those of other institutions. The Aptitude Test and the Advanced Economics Test, both parts of the Graduate Record Examinations, are recommended for this purpose.

A rigorous selection policy after admission would involve: (a) the placing of weak students on probationary status, (b) a qualifying examination after admission, and (c) use of the master's degree as a major screening device. Present mortality rates are such that out of 100 students admitted to graduate standing about 40 fail to receive the master's degree or to complete successfully the first year of work. A more rigorous selection policy would increase this rate of mortality.

Content (Chapters 6 and 7). The proliferation of economics in recent decades and the introduction of many new techniques has placed increasing pressure on graduate students. They are asked to assimilate an enormous and varied amount of substance in a few graduate years; they become so completely preoccupied with technicalities that they have little time or energy to acquire the kind of historic, philosophical, and institutional breadth which would give them perspective and judgment.

A partial solution to the problem is to require of all students a well-balanced "common core" of studies designed to provide a solid base for further work in the field. A recommended common core for both the master's degree and Ph.D. is summarized in table 28 on p. 108. For the master's degree, this core includes theory and statistics; for the Ph.D., it includes, in addition, economic history, history of economic thought, and research methods. Beyond the common core, students should be required to achieve both breadth and specialization. Greater attention should be given to achieving a fruitful balance between theoretical and empirical studies.

Research Tools and Verbal Skills (Chapter 8). The important research tools for economists include foreign languages, mathematics, law, accountancy, socio-psychological techniques, historical techniques, and possibly others. No student can be expected to have a useful knowledge of all or many of these tools. A doctoral candidate should, however, achieve a genuine mastery of at least one of them. The particular tool selected should be relevant to his interests and objectives. Present foreign language requirements are on the whole unsatisfactory

for students of economics. While foreign languages are useful tools for economists they are not the only important ones. Students should have the options of choosing from among many tools; at the same time, whatever tool they select should be mastered.

All students should have a sufficient orientation in simple mathematical ideas, symbols, and mode of thought to make economic theory and statistics readily intelligible. In the long run this knowledge should be part of the admissions requirements. More advanced use of mathematics would be regarded as one of the research tools which the student might elect.

High standards of written and oral communication should be required. To develop these skills, students should be given many opportunities for speaking, discussing, and writing; and all master's candidates should prepare theses.

Training for Research and Teaching (Chapters 9 and 10). Competence in research is one of the major objectives of graduate study—regardless of the student's career plans. The first requirement for good research training is an environment in which students have frequent contact with an active research program. The graduate department of economics should emulate, in spirit and practice, the research environment of a scientific laboratory. Students should be drawn into research as observers and as participants. An organized research agency within the department may be a useful aid in creating a desirable kind of research environment. In the research program and in research training, a balance between empiricial and theoretical work should be maintained.

The master's thesis is an essential part of research training. Current tendencies to devalue or eliminate the thesis should be reversed. Professors should be given time to work more intimately with first-year students. Doctoral dissertations should be written mostly in residence and should be written in close consultation with one or more professors. The scope of the doctoral dissertation should be narrowed to that which can be completed at a high standard of quality.

Teaching ability is an asset to an economist regardless of his specific job. Almost all economists are required to impart knowledge to others —whether they are employed in higher education, government, or business. It is appropriate, therefore, that most students should develop some competence as teachers just as all should be expected to have some competence in research. This argues again for similar basic training for all students regardless of career objectives. Teacher training does not, however, require major alteration of the graduate program. It would be desirable to require or encourage students to gain more experience in oral presentation and discussion. Seminars in

college teaching would be useful. Teaching assistantships should be transformed into apprenticeships in which the student works under careful guidance and assistance, and progresses from less to more responsible functions. The efforts of the graduate department should be supplemented by in-service training on the part of institutions employing young teachers.

Time Span of Graduate Study (Chapter 11). The average time in residence between the bachelor's and master's degrees is 1.5 years, and between the bachelor's and the Ph.D., 3.7 years. The average elapsed time between the bachelor's and master's is nearly 3.5 years, and between the bachelor's and the Ph.D., 10 years.

The average period of *residence* is not a cause for concern. If anything, it is too short because too many students do substantial amounts of their work *in absentia*. The average elapsed time, on the other hand, is excessive. The long span of years is the result of inadequate preparation for graduate study, floundering in the choice of a career, inadequate finances, procrastination, and overly-ambitious dissertations. The situation could be improved by better and earlier recruitment, use of financial assistance to see fewer students through to the degree rather than more through only to the preliminary examination, encouragement of students to write dissertations in residence, and dissertation topics of a scope that can be finished in a year or two of intensive work. The dissertation should not be thought of as a final scholarly effort of heroic dimensions representing the most advanced work of which the student will ever be capable; rather it should be a first major effort which, it is hoped, will be succeeded by a long series of later research enterprises.

The Graduate Department of Economics (Chapter 12). There are important differences between undergraduate and true graduate work—differences in content, in objectives, and in spirit. Therefore, a department of economics which offers graduate work should allot a distinguishable and fairly definite amount of staff-time, courses, funds, and facilities to the graduate program. There should be an identifiable *graduate department of economics* with its own institutional personality and its own *esprit de corps*. The supervision of theses and dissertations should be regarded as part of the regular teaching load of staff members, 5 or 6 theses to be counted as the equivalent of one course. The staff should contain a sufficient number of well-known and distinguished scholars to give the department status in the eyes of the profession. The staff should have diversity with respect to special fields, theoretical vs. empirical interests, scientific vs. policy interests, and academic vs. practical experience. To achieve adequate diversity would require a *graduate* staff of no less than 6 or 8 persons. There are both educational

and financial advantages in a sizeable student body. The best environment for graduate study, other things equal, is one in which the number of students exceeds perhaps 40. Most institutions have too few students for most effective work.

In recent years, teaching and research in economics have been subject to radical administrative fragmentation. Many new institutes, bureaus, schools, etc., have been created in which economics is a major field of interest. This movement has been the result of a variety of powerful forces, among them, the proliferation of economics into numerous specialties, the need for interdisciplinary approaches to new scientific and practical problems, the influence of pressure groups, and the effort to attract new money. On the whole, the consequences of this fragmentation have been undesirable. It has led to uneven development of the field, it has impeded communication among various specialists, it has led to narrowed training, and it has sometimes led to unwholesome relations with interest groups. It is not expected that the clock can be turned back, and all of these new agencies restored to the economics department. But a fresh examination of the situation is called for, and further fragmentation should be entered into with great caution. Efforts should be made to coordinate the various units interested in economics and to facilitate communication among them.

How might existing departments be encouraged to improve, and unqualified departments encouraged to discontinue graduate work or not to enter it? Several possible answers were considered. Accreditation by an outside agency is one possibility. This was not recommended. Another more promising possibility is for each department to subject itself, at least once every five years, to examination by a visiting committee of qualified outside members of the profession. Such a committee should be appointed by an outside agency such as the American Economic Association. Its report should be confidential for the use of the department and the general administration of the university. The expenses of the visiting committee should be borne by the university.

Instructional Methods (Chapter 13). In most departments graduate teaching does not differ significantly from undergraduate teaching. This is due partly to the uneven undergraduate preparation of the students. The result is that students do not achieve the intellectual independence and maturity that should be a major purpose of graduate education. Improvement might come through stricter requirements, greater reliance or seminars, workshops, cases, and problems. In short, there should be more creative activity for students as distinct from passive reading and listening. More attention could be given to providing awards and other incentives for distinguished work. Examina-

tion procedures could be improved. One possibility in this connection would be the use of standardized national examinations as part of the basis on which students would be judged. Such examinations, while they should not be the sole basis of evaluating students, would have the advantage of enabling each institution to compare its students with those of other universities, and thus to achieve somewhat more objective standards. The American Economic Association might take leadership in developing such examination procedures.

Graduate Study in Economics: a National View (Chapter 14). About 135 institutions in the United States and Canada offer and sometimes give graduate work in economics. Of these, about 70 award both the master's degree and the Ph.D., and 65 give only the master's degree. In 1951-52, these institutions had a combined graduate enrollment of roughly 3,000 students. During recent years they have awarded about 800 master's degrees and 200 to 400 Ph.D.'s per year. A large part of the graduate work is concentrated in a few institutions. Ten institutions award 60 percent of the Ph.D.'s and ten award 43 percent of the master's degrees. Only 6 institutions awarded 10 or more Ph.D's per year during the post-war period, and only 10 institutions awarded more than 20 master's degrees in 1950-51. The great bulk of institutions in the graduate field are awarding advanced degrees to only a handful of students.

Graduate departments of economics show little tendency to cooperate or to specialize. Each runs a relatively independent "show" and each tries to cover a broad range of specialties.

It is possible that special facilities in Washington and New York for the training of economists would be useful to supplement the facilities offered by universities. The Brookings Institution and the National Bureau of Economic Research might provide these facilities.

There are possibilities of improving the "adult education" of economists. For example, sabbatical leaves should be available for all economists, including those employed in colleges, business, and government; a few leading universities might provide short courses or extended conferences intended primarily for college teachers of economics; the American Economic Association might supplement the annual meeting with smaller and more extended conferences on specialized subjects.

Chapter 2

THE PROFESSION

The several thousand persons who are serving professionally as economists in the United States today are a heterogeneous group whose common distinguishing characteristics are by no means obvious. They have had widely varied education ranging from no formal study in economics to post-doctoral study in the field. They serve different classes of employers, among them, governmental agencies, educational institutions, research organizations, private business firms, and labor unions. A few are self-employed as private consultants or free-lance writers and lecturers. They perform a variety of functions: teaching, research, consulting, administration, writing, and lecturing. Often several of these functions are combined in a single person, and frequently individuals shift from one to another of these functions at various points in their careers, "success" often leading to administrative functions. Their professional interests cover a wide range of subject matter. Economists can be found whose interests border on history, ethics, or social psychology; others are interested in topics verging on statistical method or pure mathematics. Some are interested in the collection and interpretation of data; others confine themselves largely to theoretical studies. Some are concerned with detailed analyses of particular industries; others develop comprehensive theories of general equilibrium or sweeping studies of world economic development. Economists also differ in their views of their professional functions, in their conception of the scope and method of economics, and in the basic premises upon which they build their theoretical conclusions and their policy recommendations.

In a group so heterogeneous, one may easily question whether characteristics can be found to identify economists or to distinguish them from other professional groups. Apparently, the one common element is that all have (or profess to have) interest in and knowledge of some aspect of "that part of individual and social action which is most closely connected with the attainment and with the use of the material requisites of wellbeing."[1]

[1] Alfred Marshall, *Principles of Economics*, 8 ed., London, 1920, p. 1. Marshall's famous definition is apparently unsurpassed as a description of the field of interest of those who are called "economists." Compare "The Profession of Economist," in *The 1948 Directory of the American Economic Association, American Economic Review* (supplement), Jan. 1949, pp. 341-3.

As would be expected in so diverse a group, economists have not developed a tight professional organization which attempts to define criteria for admission or to regulate the professional activities of its members. The American Economic Association and other organizations in the field have virtually no requirements for membership beyond perfunctory endorsement of the individual applicant by one or more members. No licenses or examinations are required for setting oneself up as an "economist." All one needs is to find a job—or a clientele. This is often done with a minimum of formal education in economics. Many economists—especially in business, government, or free-lance activities—have acquired their professional knowledge and skills through individual study or through serving a kind of apprenticeship to more experienced persons.

TABLE 1.—EMPLOYMENT OF PERSONS WITH ADVANCED DEGREES IN ECONOMICS

	Total	Higher education	Other education	Public agencies	Private agencies			Unknown
					Total	Economic work	Other work	
Employment in 1940 of 845 persons who received the Ph.D., 1930–40[a]	100%	61%	1%	23%	8%	—	—	7%[d]
Employment in 1952 of 45 persons who received the Ph.D., 1939–40[b]	100	67	—	22	11	7	4	—
Employment in 1952 of 119 persons who received the Ph.D., 1949–50[b]	100	71	2	18	7	5	2	2
Employment in 1950 of 106 persons who received the Ph.D., from Columbia, 1931–50[c]	100	59	—	18	23	17	6	—
Employment in 1950 of 75 persons who passed orals at Columbia, 1931–50[c]	100	53	—	21	26	23	3	—
Employment in 1950 of 196 persons who received master's degrees from Columbia, 1931–50[c]	100	29	—	24	47	26	21	—
Employment in 1952 of 54 persons who received master's degrees, 1939–40 and 1949–50[b]	100	25	4	20	38	7	31	13

[a] E. V. Hollis, *Toward Improving Ph.D. Programs*, American Council on Education, Washington, 1945, pp. 86–7. Includes degrees conferred by 48 institutions.
[b] Data from Schedule X.
[c] J. W. Angell, *Occupations and Salaries of Former Graduate Students in Economics at Columbia University* (mimeographed), June 20, 1951.
[d] Includes 2% not gainfully employed.

Employment and Functions of Economists

Table 1 presents a compilation of data from several sources indicating the employment of persons who hold advanced degrees in economics. Although the data from the several sources are not entirely consistent, they indicate that roughly two-thirds of the Ph.D.'s and one-fourth of the masters are employed in higher education and that one-fifth to one-fourth of both groups are in public agencies.

Table 2 indicates the distribution of employment and of duties in 1940 of 845 persons who received the Ph.D. in economics in the decade 1930-31 to 1939-40, and of 22,509 persons who received the Ph.D. in all fields during the same period. Table 2 indicates that the percentage of Ph.D. economists in higher education is about the same as that for all fields combined; that relatively more economists are found in public agencies and fewer in private agencies; that the duties of economists lie largely in teaching, research, and administration; and that these duties are distributed in much the same way as those of the whole population of Ph.D's.

TABLE 2.—EMPLOYMENT AND DUTIES IN 1940 OF PERSONS WHO RECEIVED THE PH.D., 1930–31 TO 1939–40[a]

	Economics	All fields combined
Employment:		
Higher education, total	61%	60%
Universities	28	23
Colleges	28	32
University and college	4	3
Junior College	1	2
Other education	1	6
Public agencies	23	8
Private agencies	8	18
Employment status unknown	5	4
Not gainfully employed	2	4
Total	100	100
Duties:		
Teaching	48	47
Teaching and research	8	7
Teaching and administration	2	2
Research	22	24
Research and administration	2	1
Administration	8	8
Other	3	3
Employment status unknown	5	4
Not gainfully employed	2	4
Total	100	100

[a] E. V. Hollis, *op. cit.*, pp. 65, 74–5, 86–7.

Academic Economists

The traditional home base of economists has been the college or university. Economists who are attached to institutions of higher education commonly engage in a variety of activities. Their undergraduate teaching and textbook writing is an important part of liberal education, citizenship training, and training for business. Their graduate teaching helps to produce a flow of newly-trained economists for whom there is apparently a steady and insistent demand. Many of them engage in writing, public speaking, "extension" courses, and other adult educational activities in which they help to create broader understanding of economic affairs. Through their research work, they are an important source of data concerning economic life and they are a major source of theories, ideas, and proposals relating directly or indirectly to public policy. Finally, many of them are in demand by government and private organizations as part time consultants on specific questions of policy or administration.

According to a recent compilation, 4,003 persons are engaged exclusively in teaching economics in universities and colleges of the United States, another 1,085 persons are teaching economics and other social sciences and 887 are teaching the social sciences "in general."[2] These figures suggest that perhaps 4,000 to 6,000 economists—the precise number depending on one's definitions—are employed in institutions of higher education.

Graduate work in economics is generally regarded as an essential part of the training of academic economists, and the Ph.D. is often considered necessary either at the time an economist begins his academic work or within a few years. In one of the questionnaires, academic employers of economists (chairmen of departments of economics in institutions ***not*** giving graduate work in economics) were queried about the essentiality of the Ph.D. for prospective college teachers of economics. They responded as follows:[3]

	Per cent
Essential or highly desirable	55
Not essential *per se*, but necessary as a union card	19
Desirable but not essential	15
Not essential	6
Depends	2
No answer	3
Total	100

[2] James Washington Bell, "Report of the Secretary," *American Economic Review* (supplement), May 1951, p. 769.

[3] Schedule XI: 89 respondents.

It is clear that the great majority of these academic employers look with favor upon the Ph.D., although only a little more than half were willing to say that the Ph.D. is "essential or highly desirable." Most of those who were dubious about the Ph.D. questioned not the amount of graduate training but rather the suitability of the regimen leading to the Ph.D. for the training of college teachers.

Government Economists

The presence of economists in government is a relatively new phenomenon. As late as 1896, no persons were listed in the Federal Civil Service as "economists" and only 87 persons as statisticians. The word "economic" appeared in the Civil Service list for that year only with reference to an "economic ornithologist."[4] By 1931 there were about 600 persons classified as economists.[5]

A study published in 1941 reported 5,050 economists in the Federal government as of December 31, 1938 of whom 1,950 were agricultural economists.[6]

All of the above figures are estimates, and there are no precise data on the number of economists in the Federal government today. Figures indicating generally the numbers in executive agencies of the government are presented in table 3. The table probably does not include all civil service classifications in which some economists are to be found, but includes most of those in which there are significant numbers of economists. Economists are also employed in small numbers in the legislative branch of the federal government, in professional capacities within the armed services, and in state and local governments. Altogether, there are probably between 4,000 and 8,000 economists employed in governmental service.

The duties of economists in government as stated in a memorandum prepared by the Civil Service Commission are "to advise on; administer, or perform professional and scientific work in economics including the investigation, study, analysis, and interpretation of economic factors and conditions; advisory, consultative, or promotional activities related to economic problems; or the formulation, negotiation, and execution of economic policy."[7] The same memorandum distinguishes positions as *economists* from "those requiring a knowledge of particular industries or commodities, but not requiring a knowledge of the basic

[4] L. D. White, "New Opportunities for Economists and Statisticians in Federal Employment," *American Economic Review* (supplement), March 1937, pp. 210-15.

[5] *Ibid.*, p. 210.

[6] *Monthly Labor Review*, Jan. 1941, p. 83.

[7] Unpublished draft "Introduction to Economic Series."

TABLE 3.—ECONOMISTS IN EXECUTIVE AGENCIES OF THE FEDERAL GOVERNMENT, JUNE 30, 1951[a]

	Number
Professional classifications in which all incumbents are presumably economists:	
general economics	208
business economics	1,219
international trade and development economics	392
fiscal and financial economics	217
transportation economics	134
labor economics	462
agricultural economics	588
forest economics	41
Total	3,261
Professional classifications in which an unspecified portion of incumbents are economists:	
social science	473
foreign affairs	1,136
international relations	210
intelligence research	336
military intelligence research	894
statistics	2,038
Total	5,087
Non-professional classifications in which an unspecified portion of incumbents are economists:	
business analyst	2,450
agricultural marketing specialist	578
industrial specialist	4,009
commodity-industry analyst	1,655
Total	8,692

[a] Data on professional occupations from: U. S. Civil Service Commission, "Full-time Employees of Federal Executive Agencies in Professional Occupations," mimeographed release, 1952; other data supplied by Mr. Calvin P. Deal of the Commission.

principles and theories of economics or the ability to analyze a variety of economic interrelationships and to forecast the potential effects of developments in these industries or commodities on the economy as a whole." The memorandum then states that the "economist is responsible for applying basic economic theory, relating the problems involved to a broad economic context, and interpreting specific developments in terms of their significance to the economy as a whole as well as to a particular industry." More specifically, government economists serve as compilers of basic economic data, as scholars engaged in the formulation of basic theories and ideas, as consultants on questions of policy and administration, and as responsible administrators of public agencies

and programs. Almost always, in connection with these tasks, they perform educational functions in their daily contacts with their non-professional colleagues.

The Federal Civil Service designates the following special fields: agricultural economics, business economics, fiscal and financial economics, forest economics, general economics, international trade and development economics, labor economics and transportation economics. In addition to these major classifications many other positions or sub-classifications, filled by persons designated as economists, are actually found in the Civil Service.[8] And many positions not designated for economists actually require professional competence in that field, and are filled by trained economists.

The minimum requirement for entry into the Federal Civil Service as an economist is "the kind of training in the basic principles and theories of economics which can be gained through a major in economics culminating in graduation from a recognized college or university, or training equivalent in type, scope, and thoroughness."[9] In short, it is a frequent practice to accept persons into the Civil Service as junior professional assistants in economics who have only a bachelor's degree in economics or its equivalent. Such persons are able, if competent, to rise to high grades in the Civil Service without formal graduate education. Advancement becomes possible on the basis of experience and demonstrated ability. Graduate study can be used to a limited extent as a substitute for experience, but graduate study is not a formal requirement for any professional position in economics, and economists without formal graduate training are to be found at all levels in the Federal Civil Service.

A majority of the 22 supervisors of economists in the Federal government who responded to my questionnaires favored graduate study in the preparation of Federal economists. But they were not unanimous in this and they differed considerably on the amount of graduate study which they thought useful. When asked whether the Ph.D. is essential for persons who are expecting to reach the higher positions as economists in the Federal government, their answers were:[10]

[8] Among them are: land economists, city planning economists, housing economists, mineral economists, reclamation economists, Federal works economists, rural population economists, urban population economists, natural resources economists, fisheries economists, fish and wildlife economists, power economists, public health economists, public utilities economists, air transport economists, price economists, and manpower economists.

[9] Unpublished draft of Civil Service Memorandum "Introduction to Economic Series," *op. cit.*

[10] Schedule XII: 22 respondents.

Yes	23%
Desirable but not essential	46
No	27
No answer	4
Total	100

But most of those who were negative or doubtful about the Ph.D. indicated that they favored at least some graduate study for most high-level government economists, and no respondent expressed opposition to graduate study.

The supervisors of economists were then asked whether formal *graduate* training in economics is essential for persons who are expecting to serve in the lower grades as economists for the Federal government. To this question, their answers were:

Yes	64%
Desirable but not essential	14
No	18
No answer	4
Total	100

Those answering "yes" indicated unanimously that at least one year of graduate study or a master's degree was desirable, and of those answering "no," a few thought that the bachelor's degree or the bachelor's plus some "special courses" or "some graduate work" would suffice.

The conclusion emerges that most of this group of supervisors of economists in the Federal government regard some graduate study in economics as desirable for Federal economists at all levels, but that only a minority (23 percent) state unqualifiedly that the Ph.D. is essential even for positions of the higher grades.[11]

In some quarters there have been questions about the adequacy of the formal graduate training of many economists in the Federal government. A Committee of the American Economic Association on Economists in the Public Service, of which Professor Morris A. Copeland was chairman, indicated in 1946 their concern with what they viewed as an "upward trend in the proportion of government economists with little or no graduate training in economics."[12] This group recommended that in the selection of economists of the grade P4 (G.S.11) and above, the requirements should be amended to include the following: "(a) The candidate should be required to establish that he has done a substantial

[11] This conclusion agrees with that reached by a sub-committee under the chairmanship of Professor Ben W. Lewis in 1950. See "The Teaching of Undergraduate Economics," *American Economic Review* (supplement), Dec. 1950, pp. 125-6.

[12] "Report of Committee on Economists in the Public Service," *American Economic Review* (supplement), March 1946, p. 913.

piece of competent, independent economic research, the results of which are set forth in a written report a copy of which is permanently on file with the Commission or in a library approved by the Commission for the purpose; (b) the candidate should be required to establish that he is professionally, competently conversant with the current status of work in two broad phases of economics other than the phase of economics with which his qualifying independent research is concerned."[13] This proposal which would require the Ph.D. or nearly its equivalent for economists of higher grades, would significantly stiffen the requirements and doubtless block the promotion of many persons who might otherwise reach the higher grades under present regulations.

The Copeland Committee recognized, however, that the Federal government now relies, and will doubtless continue to rely, to a large extent on economists who have received a major share of their training on the job and who have not had substantial graduate study. Therefore, they recommended improvement in the quality of the experience and training which these economists receive on the job or concurrently with their work. Although the committee did not specify all the devices by which this could be accomplished, it is easy to suggest several possibilities: attendance at courses in universities or at seminars and classes provided by employing agencies;[14] in-service training for specific jobs; rotation of jobs so that the individual acquires a broad experience;[15] and leaves of absence for study or for practical experience in business, labor unions; etc. Two additional suggestions (in which I strongly concur) have frequently been made. First, that government economists should occasionally have the opportunity to teach or to engage in pure research in close contact with university economists. Second, that government economists should be permitted refresher periods, free from routine duties, similar to the academic sabbatical leave.[16] In this connection, a great opportunity exists for leading universities to provide fellowships or temporary teaching appointments to career economists in the Federal government. The highly successful Niemann Fellowships for journalists at Harvard University suggests the possibilities.

Business Economists

One of the newer and more rapidly growing professional opportunities for economists is in business corporations. Although a few econo-

[13] *Ibid.*, p. 916.

[14] The graduate school of the U. S. Department of Agriculture is an outstanding example.

[15] The tendency of many economists in Washington to move about from one agency to another helps to produce this result, and may actually be advantageous to the service, on balance.

[16] *Ibid.*, p. 915-917. See also, L. M. Short, *Personnel Problems Affecting Social Scientists in the National Civil Service*, Social Science Research Council, April 1946, p. 25.

mists have been so employed for many years, the numbers have undoubtedly multiplied in the past two decades. I should guess, on the basis of various fragments of data, that there may be as many as 600 persons serving today as professional economists in American business firms.[17] Because little information has been published on the role of business economists, I shall discuss this subject in some detail.[18]

My questionnaires to the heads of economics departments in leading business concerns yielded replies from 49 firms including 27 industrial concerns, 13 banks and insurance companies, 4 public utilities, 1 department store, and 4 other companies. Of the 49 respondents 9 carried the title of vice-president or partner, 2 were called "assistant to" the chairman or president, 16 had the title of director of research or equivalent, 15 were labelled "economists," and the remaining 7 had miscellaneous titles. The number of persons employed in the economics departments of the reporting firms is shown in table 4. The number of professional economists varied from 1 to 15 with the median at 3, the total number of assistants varied from 1 to 37 with the median at 5, and the total employment from 1 to 50 with the median at 8. Evidently, the economics departments of many corporations are substantially equal, in number of employees, to the economics departments of many colleges and universities.

The economics departments of the reporting companies were found to be highly placed in the corporate hierarchies. Of the 41 departments giving information on this subject, about half reported directly to the president or chairman, and half reported to a vice-president or controller.

The reporting business economists indicated that they (or their departments) are ordinarily concerned with a wide range of subjects. The subjects mentioned most frequently were general domestic business conditions, markets and prices of the firm's products, governmental policies, problems relating to money and capital markets, economic conditions in foreign countries, and capital budgets.

The work of the business economics departments is actuated by a

[17] The average number of economists in the firms reporting for this study was 4 (see table 4). If as many as 150 companies should have economics departments of the size of those in the sample, as seems likely, the number 600 would be a reasonable minimum. If many persons in market research activities were to be classd as economists, this number would be considerably higher.

[18] For other discussions of the functions and role of business economists, see: National Resources Planning Board, *Research—A National Resource*, Vol. III, "Business Research," Washington, June 1941; Francis C. Jones, "The Role of an Economist in Private Industry," *Michigan Business Review*, March 1950, pp. 6-9; Committee on Economic Policy, U. S. Chamber of Commerce, *Business Management and Economic Analysis*, Washington, 1947; *Business Week*, Jan. 10, 1953, pp. 134-46.

TABLE 4.—PROFESSIONAL ECONOMISTS AND THEIR ASSISTANTS IN REPORTING BUSINESS FIRMS[a]

Number of professional economists employed[b]	Number of firms	Number of assistants employed[c]	Number of firms	Total number of professional economists and assistants employed	Number of firms
1	12	1	6	1	0
2	9	2	2	2	5
3	7	3	7	3	1
4–6	7	4–6	9	4–6	9
7–9	3	7–9	3	7–9	8
10–14	4	10–14	5	10–14	5
15–19	2	15–19	6	15–19	4
20 & over	0	20 & over	5	20 & over	11
unknown	5	unknown	6	unknown	6
Total	49	Total	49	Total	49

[a] Schedule VIII: 49 respondents.

[b] The term "professional economist" refers to "persons doing work for which a knowledge of economics at the professional level is a principal requirement."

[c] The term "assistant" is defined to include "assistants, clerks, interviewers, stenographers, etc."

wide range of objectives. Virtually all of the respondents consider that one of their main purposes is to provide information and judgments relative to specific managerial policies and decisions. And nearly all of them reported that they felt that important managerial decisions are sometimes influenced by the studies, analyses, and recommendations of the economic staff. But almost all of them also reported that they had other objectives—the most important being education of company officials and the business community on economic and public affairs. Of 36 respondents, 32 indicated that they felt that the work of the economic staff helps management to understand the broad economic and social implications of its decisions, and that management is thereby assisted in discharging its public responsibilities. A substantial number considered that their functions also include educational tasks associated with public relations and with the influencing of public policy.

In communicating the results of their studies and investigations, the economics departments of business firms utilize a variety of techniques. The more frequent and more important methods are the preparation of memoranda and publications for distribution within the company and conferences with company officials. Many of them, however, communicate with outside groups by means of publications and addresses, and with public officials through the briefs and testimony they help to prepare and through personal conferences.

In education and experience, the 49 responding business economists are a varied group. On the basis of their personal histories it would be difficult to generalize regarding the kind of education that is suitable for business economists or that prepares for this type of work. In education they ranged from no college work whatever, or college work in a field outside economics, to the Ph.D. in economics. Only a little more than half had taken any graduate work in economics or business administration. Only a fifth had received the Ph.D. in economics—though 3 more held the Ph.D. in mathematics of sociology. More than a third gave no indication that they had had any formal training, either at the undergraduate or graduate level, with economics as a major, though some of these may have studied economics as a minor field.

The relative lack of formal graduate education was apparently offset by a wide and diversified experience. All but a handful indicated that they had had experience in college teaching, government, or business operations, and 57 percent indicated experience in two or more of these activities. Yet only a few of the respondents indicated that they had had experience *with their present companies* in jobs other than research. Evidently, then, most business economists have been recruited from outside their companies after they have had a fairly wide experience in college teaching, government, or business. Apparently, formal academic training in economics has not been a major factor in the selection of these persons.

More light on the academic preparation of business economists is provided by data on the educational backgrounds of the professional economists employed as subordinate staff members in the economics departments of reporting companies. Almost all of the subordinate staff members have had some academic work in economics, and more than three-quarters of them have had some graduate work in economics. That the subordinate staff members as a group have had relatively more *academic* training in economics than the heads of the economic departments is at first surprising. It is to be explained, I think, by several factors: (a) senior business economists are on the whole older than the subordinate staff members and received their formal education when graduate work was less common than today; (b) they were recruited for their all-around judgment and their ability to work with top management rather than for their technical training in economics; (c) positions in business have until recent years been regarded with some suspicion by academic economists; and (d) graduate study does not carry the same prestige in business circles as in the academic world. Most of the subordinate staff members, on the other hand, have been recruited in recent years when a large supply of academically trained economists has been available. This supply has been the obvious source of talent for staffing the growing economics departments of the large

companies, particularly as it has been recognized that the techniques and judgments of the academically trained economist can be put to effective use in business management. It seems likely that more of the top business economists of the future will have had substantial academic training.

Another indication of the attitudes in business toward the training of economists comes from the responses of business economists on the question of whether the Ph.D. is essential for persons who are expecting to enter careers as economists in business and who hope to reach top positions.

The answers were:[19]

Yes	33%
Desirable but not essential	18
Doubtful	4
No	31
No answer	14
Total	100

However, almost all of those who were negative or doubtful regarding the Ph.D. thought that some graduate work in economics is essential. A third of this group considered the master's degree to be sufficient and the remainder felt that only some specialized graduate work in particular areas is needed. When asked their opinion as to whether formal graduate training in economics is "essential or highly desirable" for *subordinate* members of economics staffs in business firms, nearly all expressed judgments favorable to graduate study though only one respondent felt that subordinate professional staff members should have the Ph.D.

The conclusions from the data and judgments regarding graduate education of business economists are: (1) that the majority of top business economists have not had very much formal graduate training in economics, but that most of them favor substantial graduate training for their successors; (2) that a majority of subordinate professional economists in business have had considerable graduate work in economics and most of their superiors believe that they should have at least a year or two of graduate study.

Just as business enterprises have been developing economics departments in recent decades so labor unions have been organizing research and educational divisions employing substantial numbers of economists. Not only the American Federation of Labor, the Congress of Industrial Organizations, and other major labor organizations have developed research and educational staffs with professional economists but also many of their affiliates and independent unions have also found places

[19] Schedule VIII: 49 respondents.

for professional economists. A recent study reveals that research departments are found in 51 of 107 A.F. of L. affiliates, and in 28 of 69 independent unions.[20] In most of these, the research departments are separate from education departments, though in some the two functions are combined. The number of professional research personnel varies from 1 to 20 or more in these unions.[21]

Another growing employment for economists is in private consulting firms which serve a clientele consisting chiefly of business, labor unions, and foreign governments. Consulting economists on the whole perform functions similar to those of economists who are actually in the employ of these organizations.

The combined number of economists in business, labor, and private consulting firms may be somewhere between 1,000 and 1,500. This is, however, no more than a very rough guess.

Note on the Number of Economists in the United States

The question is frequently asked: How many economists are there in the United States? The answer depends, of course, on how one defines "economist." For example, one might define it in terms of formal education, and thus include only those who hold the Ph.D. in economics, or perhaps those who hold at least a master's degree in the field. Or one might define it in terms of functions performed, and thus attempt to count the persons qualified to hold jobs in which the work of an "economist" is performed. Or one might define it in terms of the titles assigned to persons or positions, and thus include anyone who is called an "economist." I have felt that in a profession as indefinite and as loosely-organized as economics, no purpose would be served by formulating an arbitrary definition of "economist," and then attempting to estimate the number of persons who would fit this definition. I have, however, collected a few fragmentary figures which indicate the approximate orders of magnitude.

In the preceding sections of this chapter, I have made very rough estimates of the number of economists in the three principal types of employment as follows:

	Minimum	*Maximum*
College and university	4,000	6,000
Government	4,000	8,000
Business and other	1,000	1,500
Total	9,000	15,500

[20] J. B. S. Hardman and M. F. Neufeld, *The House of Labor: Internal Operations of American Unions*, New York, 1951, p. 230.

[21] *Ibid.*, p. 230. For a discussion of the educational and communications activities of unions, see pp. 171-225 and 419-82.

In 1952, there were 7,267 members of the American Economic Association.[22] This figure doubtless includes persons who would not be regarded as economists under any reasonable criteria and certainly fails to include persons who would unquestionably qualify as economists. For example, a check of the records of the Association revealed that only 71 of 141 individuals who received the Ph.D. in 1939-40, and 159 of 391 who received the Ph.D. in 1949-50 were members of the Association in 1952. And among economists who do not hold the Ph.D., the proportion of non-membership is probably relatively higher. I would judge, therefore, that the membership of the Association grossly understates the number of economists in this country.

Another figure comes from the registration of economists by the National Roster of Scientific and Specialized Personnel. This organization reported the following numbers of registrants as of December 31, 1945:[23]

with the Ph.D.	1,642
with master's degrees	1,923
with bachelor's degrees	3,133
without degrees	651
Total	7,349

These figures almost certainly understate the number of economists. For example, there were almost surely more living persons holding the Ph.D. in economics in 1945[24] than the 1,642 who were registered. The registration of persons with master's degrees was probably even less complete.

Another approach to the problem of deriving the approximate number of economists is (1) to estimate the number of living persons who have been awarded advanced degrees in economics and (2) to estimate the number of these persons who are serving in capacities for which professional knowledge of the field is essential. During the period from 1910 to 1952, American universities awarded about 4,900 Ph.D.'s and about 19,000 master's degrees in economics. (The figure for the Ph.D.'s is fairly reliable but for the master's degrees very rough.) Most of those who received the doctorate during this period also received master's degrees. Therefore, to avoid double-counting and to obtain the number of those for whom the master's was the highest degree, the total number of master's degrees should be reduced by

[22] American Economic Association, *Information Booklet*, 1953, p. 14.

[23] James Washington Bell, "Report of the Secretary," *American Economic Review* (supplement), May 1951, p. 769.

[24] About 3100 Ph.D's in economics were awarded between 1910 and 1945. Allowing for mortality, emigration, immigration, etc., it seems probable that the number of Ph.D.'s living in the United States was not less than 2,500 in 1945.

4,900. This leaves about 14,000 persons who received master's degrees during the period but who did not receive doctorates.

During the period from 1910 some mortality has occurred; however, it has probably been small because the great bulk of the degrees were awarded within the past 30 years, and more than half since 1940. Assuming a mortality of one-fifth, this would leave about 4,000 surviving Ph.D.'s and 11,000 surviving masters.

Some of the recipients of degrees were foreign citizens and now live abroad; others may have emigrated to other countries. On the other hand some individuals with degrees in economics from foreign universities have migrated to this country. The net effect of this migration is unknown; I have assumed that the two movements have been counterbalancing.

These calculations would suggest that there are about 15,000 living persons in the United States who hold advanced degrees in economics. Some holders of advanced degrees, however, do not pursue economics as a profession. Therefore, if we count as economists only those who have advanced degrees and who follow the profession, another reduction in the number is necessary. Table 1 (p. 10) indicates that the great majority, perhaps 95 percent, of Ph.D.'s are employed in higher education, in public agencies, and in economic work within private agencies. These are the types of employment in which they are likely to be serving as professional economists. I have assumed, then, that about 95 percent of the living holders of the Ph.D. in economics are professional "economists." These are estimated, then, at 3,800 (95 percent of 4,000).

Similar data for those with master's degrees (table 1) indicate that from two-thirds to four-fifths are employed in higher education, public agencies, and economic work within private agencies. On the other hand, almost all of those who passed the oral examinations but did not complete the Ph.D. were engaged in professional work. It would seem reasonable to assume then, that perhaps four-fifths of all the persons who hold the master's degree but not the Ph.D. are engaged in professional work. This would mean that of the estimated 11,000 holders of the master's degree in economics, about 8,800 could be classed as "economists." Adding these to the Ph.D. group, gives a total of 12,600 persons with advanced degrees in economics who are serving in professional capacities. To these should be added an unknown but substantial number of persons serving as professional economists who have no advanced degrees in economics. One might guess, on the basis of these calculations, that there are more than 13,000 persons serving as economists in the United States.

The net conclusion of my investigation of the number of economists

in the United States is that, in the absence of definite criteria for distinguishing economists from others, it is impossible to set any one precise figure. At one extreme, if the term "economist" is restricted to persons holding the Ph.D. and pursuing the profession, the number would be about 4,000. At the other extreme, if one included every person who is doing work requiring some knowledge of economics, regardless of his formal education and regardless of the level of the work, the number might exceed 20,000. Between these two extremes, the number would depend upon the definition of "economist" in terms of educational level and nature of jobs performed. To date there is no authoritative or generally accepted definition of an economist which makes possible the designation of any particular number.

Chapter 3

CONDITIONS IN THE PROFESSION

This chapter is concerned with the salaries of economists, the market for their services, and the status of the profession.

Salaries of Economists

Because a large proportion of economists are employed in college teaching and in government service, their salaries are usually related to the somewhat conventional earnings in these two types of employment.

The pay scales of the Federal Government (as of 1952) provide that a college graduate who enters the Civil Service without experience as a Junior Professional Assistant will receive an annual salary of \$3,410. A person with a master's degree in economics, and no experience, will probably receive \$4,205 and one with a Ph.D. \$5,060. (See table 5.) As a new appointee progresses he may ultimately reach one of the higher brackets. Many will reach the range from about \$6,000 to \$9,000, a few will pass the \$10,000 mark, and a very few may enter the "super-grades" which pay from \$12,000 to \$14,800.

Available data on the salaries of college teachers indicate that they are probably somewhat lower than salaries in the Federal government. However, they are expressed in terms of the academic year of 9 or 10 months, and academic positions often provide perquisites and opportunity for supplementary earnings;[1] hence it is not certain that teaching pays less than government service for personnel of equal quality.

Table 6 presents data on the 1951-52 salaries of teachers in all fields in 40 leading colleges and universities. The salaries reported in this table are doubtless higher than the national averages because only leading institutions are included.

Another indication of the earnings of economists is provided by a study of the salaries in 1950 of persons who were graduate students in economics at Columbia University during the period 1931-1950. These data, presented in tables 7 and 8, were compiled by Professor J. W. Angell and kindly made available by him. These figures show several

[1] Professor George J. Stigler concludes: "In sum, more than 50 per cent must be added to the salaries of college teachers in making comparisons with earnings in independent professions. With this correction in 1941, the 'net advantages' of college teaching exceeded those of dentistry, and were almost equal to those of law and medicine." ***Employment and Compensation in Education,*** National Bureau of Economic Research, Occasional Paper 35, New York, 1950, pp. 62-3.

TABLE 5.—PAY SCALES FOR PROFESSIONAL WORKERS IN THE FEDERAL GOVERNMENT, 1952[a]

Grade: Professional	Grade: "General service" equivalent	Salary range
1	5	3,410– 4,160
2	7	4,205– 4,955
3	9	5,060– 5,810
4	11	5,940– 6,940
5	12	7,040– 8,040
6	13	8,360– 9,360
7	14	9,600–10,600
8	15	10,800–11,800
—	16	12,000–12,800
—	17	13,000–13,800
—	18	14,800[b]

[a] U. S. Civil Service Commission.
[b] There is no range within grade GS18.

interesting relationships. (1) Average salaries of those who passed their orals were on the average about $1,100 higher than the salaries of those with only the M.A.; and average salaries of those with the Ph.D. were on the average about $1,300 higher than those who had merely passed the orals.[2] These differentials were somewhat larger for those employed in government service and other economic work, and somewhat less for those employed in teaching. This is surprising in view of the usual opinion that formal graduate education means more in college teaching than in other types of work. (2) Salaries of economists apparently increase as they get more experience. Those who attained their highest academic standing in 1941-45 were getting average salaries about $1,600 higher than those who ended their graduate studies in 1946-50; the 1936-40 group were receiving about $900 more than the 1941-45 group; and the 1931-35 group about $800 more than the 1936-40 group. (3) The salaries of those in government service and other economic work (presumably in business firms, trade associations, labor unions, etc.) was about $1,700 greater than the salaries of those in teaching. Average salaries in government and other economic work were about equal. (4) The average salaries of men and women were equal in teaching, but there was a differential of more than $2,000 in government service and a differential of nearly $1,000 for all types of employment combined (table 8). Three women reported salaries above $10,000.

[2] In interpreting these comparisons, allowance must be made for the fact that the average age of the master's and oral's groups is undoubtedly lower than that for the Ph.D. group. The effect of this age difference, and the resulting difference in amount of experience, would be particularly marked for those who attained highest academic standing in 1946-50.

TABLE 6.—RANGE OF INSTRUCTIONAL SALARIES IN SELECTED COLLEGES AND UNIVERSITIES, 1951–52, BY RANK[a]

	Professors	Associate professors	Assistant professors	Instructors
6 small private institutions, New England and Middle Atlantic				
Minima	$5,200– 7,750	$4,200– 6,000	$3,300–4,600	$3,000–3,500
Maxima	7,750–11,000	6,000– 8,300	4,750–8,000	3,900–4,400
Mean	6,950– 8,581	5,320– 6,565	4,350–5,119	3,572–3,932
5 medium-sized institutions, New England and Middle Atlantic				
Minima	5,000– 7,000	4,000– 5,000	3,200–4,200	2,300–3,600
Maxima	8,700–12,500	7,500– 9,000	5,700–6,000	4,000–4,500
Mean	6,199– 8,568	5,058– 5,981	4,114–5,169	3,250–3,950
4 large private institutions, New England and Middle Atlantic				
Minima	6,000–10,000	5,000– 6,500	4,000–5,000	3,000–4,000
Maxima	15,000–17,500	7,500– 9,000	5,500–6,000	3,600–4,500
Mean	7,769–12,600	5,618– 7,990	4,555–5,415	3,430–4,000
3 private Women's Colleges in New England and Middle Atlantic				
Mean	6,073– 6,832	4,939– 5,267	3,981–4,550	3,125–3,468
5 small private institutions, North Central and Pacific				
Minima	4,800– 5,550	3,600– 4,650	3,400–3,700	2,700–3,000
Maxima	6,000– 8,500	4,600– 5,400	4,099–4,750	3,399–4,100
Mean	5,284– 6,639	4,261– 4,915	3,623–4,130	3,046–3,592
4 medium-sized and large private institutions, North Central and Pacific				
Minima	5,000– 6,142	4,000– 5,092	3,300–4,000	2,800–3,600
Maxima	7,980–15,000	6,142– 8,200	5,092–7,500	4,042–5,000
Mean	6,625– 8,133	5,277– 6,087	4,334–4,927	3,551–3,981
4 medium-sized and large private institutions in South				
Minima	4,950– 5,500	3,900– 4,800	3,200–3,600	2,400–3,000
Maxima	7,250–10,750	6,000– 6,500	5,000–5,500	3,900–4,500
Mean	5,591– 7,154	4,848– 5,390	4,224–4,490	3,318–3,590
3 private institutes of technology[b]				
Mean	8,782– 9,686	6,648– 6,997	5,115–5,455	3,400–3,911
6 large state universities, North Central and Pacific				
Minima	5,270– 6,500	4,720– 5,670	3,700–4,203	2,700–3,780
Maxima	9,375–17,200	6,500–11,000	5,000–7,500	4,000–6,690
Mean	7,216– 8,683	5,660– 6,349	4,550–5,150	3,684–4,337

[a] Source: *Bulletin*, American Association of University Professors, Winter 1951–52, pp. 796–802. Salaries are expressed in terms of 9–10 months' service. They refer to all fields—not to economics alone

[b] On basis of 10½ and 11–12 months of service.

TABLE 7.—AVERAGE SALARIES IN 1950 OF FORMER GRADUATE STUDENTS IN ECONOMICS AT COLUMBIA UNIVERSITY, BY HIGHEST ACADEMIC STANDING AND BY TYPE OF EMPLOYMENT[a]

Highest academic standing attained and type of employment	Years during which highest academic standing attained				
	Entire period 1931–50	1931–35	1936–40	1941–45	1946–50
M.A.					
Teaching	$ 3,891	$ 5,294	$ 5,525	$ 3,980	$ 3,503
Government	5,436	8,113	6,867	5,881	4,110
Other economic work	5,123	7,890	11,150[b]	5,371	4,240
All other	4,660	4,625	4,900	12,000[b]	3,935
Average, entire group	4,772	6,709	6,830	5,534	3,988
Passed orals					
Teaching	4,066	—	5,438	4,737	3,783
Government	6,993	7,250	6,450	8,340	5,760
Other economic work	7,887	15,500[b]	8,975	—	5,711
All other	16,000[b]	—	—	—	16,000[b]
Average, entire group	5,862	11,375[b]	7,055	6,738	4,709
Ph.D.					
Teaching	5,964	7,700	6,009	6,077	5,017
Government	8,936	8,350	8,900	9,360	8,808
Other economic work	9,494	17,250[b]	10,300[b]	6,480	11,167[b]
All other	10,900[b]	—	—	—	10,900[b]
Average, entire group	7,175	8,593	7,719	6,691	6,622
Total					
Teaching	4,805	7,023	5,786	5,531	3,979
Government	6,523	7,904	7,358	7,628	5,331
Other economic work	6,592	10,495[b]	9,973	5,833	5,031
All other	5,963	6,166	4,900	12,000[b]	5,747
Average, entire group	5,714	8,089	7,240	6,306	4,679

[a] J. W. Angell, *Occupations and Salaries of Former Graduate Students* (mimeographed), June 20, 1951. Data cover salaries only, and omit earnings from other sources; based on 331 replies.
[b] Based on fewer than 6 cases.

Market for Economists

With the sizeable graduate enrollments of recent years, and the large number of advanced degrees awarded in economics, the question arises as to whether the market will continue to absorb the annual crop of new economists at present salary levels. For example, since the end of World War II (academic years 1945-46 through 1951-52), about 1,800 Ph.D.'s have been awarded by American universities. The magnitude of this figure can be appreciated when it is realized that this post-war crop represents nearly one-third of all the doctorates in economics ever awarded in this country. In all the years prior to 1945-46 fewer than 4,000 doctorates had been granted.

TABLE 8.—AVERAGE SALARIES IN 1950 OF FORMER GRADUATE STUDENTS IN ECONOMICS AT COLUMBIA UNIVERSITY, BY SEX[a]

Highest academic standing attained and type of work	Men	Women	Men and Women
M.A.	$4,843	$4,455	$4,772
Passed orals	5,939	5,066	5,862
Ph.D.	7,368	5,892	7,175
Total	5,854	4,912	5,714
Teaching	4,803	4,816[b]	4,805
Government	6,959	4,837	6,523
Other economic work	6,858	6,300	6,592
All other	6,186	4,173	5,963
Total	5,854	4,912	5,714

[a] J. W. Angell, *op. cit.* Based on replies from 282 men and 49 women who were regularly employed.

[b] Because of the structure of the sample, no significance should be attached to the fact that the average salary in teaching for women slightly exceeded that for men.

I have no reliable information with which to predict the future market for economists. The following conjectures seem reasonable: (1) that the population of college students will grow in the years ahead, and that opportunities in college teaching will expand; (2) the demand for economists in business, foundations, and other private organizations will increase, though the absolute numbers involved may not be large. (3) there may be a brisk market throughout the world for economists trained in the United States. It is likely, on the other hand, that employment opportunities in the Federal government will grow less rapidly than during recent decades.

Replies to some of my questionnaires suggest that the market—at least through 1952—has been brisk, that graduate students in economics have been finding little difficulty in placement, and that experienced economists have been able to obtain suitable positions in the profession at prevailing salary scales.

A large majority of employers or supervisors of economists in universities and colleges, business firms, and government indicated that the market for economists has been tight. Similarly a large majority of professors in graduate departments of economics stated that most students—both at the master's and doctoral level—have been readily placed. There was some indication, however, of greater placement difficulty during 1951-52 and 1952-53 than in earlier years.

When graduate students in residence in 1951-52 were asked about their career objectives, most indicated that they hoped to have positions as professional economists in higher education, government, or

business. When asked about the prospects of their being able to get the kind of position they hoped for, about two-thirds indicated a high degree of confidence. The answers regarding their prospects were as follows:[3]

	Per cent
almost certain	31
reasonably confident	31
50-50 chance	12
doubtful	9
unlikely	6
don't know	11
Total	100

The relatively strong demand for economists in the past few decades should not be surprising in view of the great expansion of employment opportunities in higher education, government, and business. Whether this demand will continue to grow in the future is uncertain.[4] It seems likely, however, that there will be a fairly consistent demand for persons with the Ph.D. or its near-equivalent. A large proportion of the economists practicing today—including many in high-level positions—have not had formal education equivalent to that represented by the Ph.D. As the supply of Ph.D.'s grows, an increasing proportion of jobs requiring competence in economics will probably be filled with persons having that degree; at the same time it may become more difficult to secure positions in economics without the degree.

Status of the Profession

It would be gratifying for economists to think only of their growing influence and prestige in American life; but candor requires that they also face up to their professional limitations. On many important scientific matters in which society is deeply interested, economists lack demonstrable knowledge. Similarly, on many questions which lie in the realm of values, economists are found to be in disagreement. On

[3] Schedule IX: 140 respondents.

[4] The question of the market for college graduates and the adequacy of the supply of trained professional personnel has become a lively issue in recent years. Prof. Seymour E. Harris in *The Market for College Graduates* (Cambridge, 1949) emphasizes the possibility that we may be on the verge of an oversupply of professional talent. Several other investigations are apparently proceeding from the assumption that there is a shortage of trained professional personnel—especially in the natural sciences and engineering—and are oriented toward finding ways to increase the supply. See: M. H. Trytten, *Human Resources and the Fields of Learning* (A preliminary mimeographed report of a survey under the auspices of the Conference Board of Associated Research Councils, Committee on Specialized Personnel); Commission on Human Resources and Advanced Training, *Plans for Studies of America's Trained Talent*, Washington, 1951; American Council on Education, *The Production of Doctorates in the Sciences: 1936-1948* (mimeographed), Washington, 1951.

these questions, the statements and recommendations of economists sometimes become little more than reflections of personal opinion. As a result, doubt is cast on the validity of all economics and on the usefulness of all economists—sometimes even to the point of ridicule. Indeed, the opinion has frequently been expressed that any interest group can find an economist who will publicly support its position. Since opposing interest groups can also find their economists, the net result of economic advice, as viewed by the public, is sometimes confusion with overtones of bad faith.

There are also other factors tending to lower the prestige of economists. To many people, their main function is to predict business conditions or security prices. Since economists have not been conspicuously successful as business forecasters, the tendency is to repudiate economists altogether. To other people, economists are odiously linked with bureaucracy, or with onerous governmental controls, or with schemes for economic "planning." Still others regard economists as "theorists" in the sense of visionary and impractical men.

A recent study of public attitudes toward various occupations and professions suggests that the prestige of economists is embarrassingly low. In this study, opinion data were gathered through personal interviews with a cross-section of the American public on the relative status of 90 occupations ranging from supreme court justice to bootblack.[5] Included in this list were several learned professions. Table 9 presents a list of selected occupations included in the study with the ranking of each.

In this list, it is noteworthy that "college professor" is placed relatively high with a rank of 7, that most of the learned professions are in the first 25, and that "economist" stands well below *all* the other learned professions included with a rank of 33.[6]

In interpreting these data, however, it should be recognized that 22 percent of the respondents were unable to express a judgment on

[5] National Opinion Research Center, *National Opinion on Occupations, Final Report of a Special Opinion Survey Among Americans 14 and Over Conducted in March, 1947* (mimeographed). This study was conducted under the sponsorship of Professor Paul K. Hatt of Northwestern University who has kindly granted permission for use of the results here. The ranking of each occupation was computed on the basis of a weighted average of the percentage of persons classifying the occupation excellent, good, average, somewhat below average, and poor.

[6] The report on the study states: (p. 4) "If it is found that certain occupational groups have extremely low social status in the eyes of the public, the findings delineate the areas in which remedial public relations are needed. If a certain group (e.g., scientists in general) is found to have quite high social status, that group can infer it has a reasonably good chance to get a respectful hearing from the general public." Also, (p. 21): "County judges, psychologists, sociologists, economists, and bartenders rate higher in the northeast than in other regions."

TABLE 9.—RANKING OF OCCUPATIONS, BY STATUS[a]

Occupation	Rank	Occupation	Rank
U. S. Supreme Court Justice	1	Psychologist	22
Physician	2	Civil engineer	23
State governor	2	Sociologist	26
Cabinet member	4	Owner of small factory	26
Diplomat in U. S. Foreign Service	4	Accountant for a large business	28
Mayor of large city	6	Biologist	28
College professor	7	Captain in the regular army	31
Scientist	7	Building contractor	33
U. S. Representative	7	ECONOMIST[b]	33
Banker	10	Instructor in the public schools	33
Government scientist	10	County agent	37
Minister	12	Railroad engineer	37
Priest	15	Farm owner and operator	39
Architect	15	Radio announcer	40
Chemist	15	Bookkeeper	50
Dentist	15	Garage mechanic	61
Lawyer	15	Milk route man	70
Board member of large corporation	15	Dock worker	81
Nuclear physicist	15	Shoe shiner	90

[a] National Opinion Research Center, *op. cit.*

[b] Of the respondents, 25 per cent rated economist as "excellent," 48 per cent "good," 24 per cent "average," 2 per cent "somewhat below average," 1 per cent "poor," and 22 per cent "don't know."

"economist" and responded "don't know." This percentage was higher than that for any other occupation except "nuclear physicist" and "sociologist." The low status of economists may be explained in part by lack of knowledge.

Conclusion

The economists of the United States are a small heterogeneous group without strong professional consciousness or powerful professional organization. They face public attitudes that are often indifferent and sometimes hostile. Their status as viewed by the public is lower than that of other learned professions. Nevertheless, economists exert an important—and probably growing—influence in American life—an influence that is entirely disproportionate to their numbers or to the offices they hold. This influence is due primarily to the increasing public interest in economic affairs, an interest which has grown out of this generation's experience with depression, war, inflation, high taxes, enlarged scope of government, labor conflict and the world-wide threat to the capitalistic system itself. The advice of technically trained economists is sought by government, private business firms, trade associations, labor unions and other groups. Economists frequently appear as expert witnesses before Congressional Committees and public boards. Because economics has become a leading study in schools and colleges,

and because citizens of all classes have become intensely interested in economic affairs, economists are able to exert significant influence through their teaching, writing, and lecturing. Frequently the research studies and theoretical investigations of economists lead the way to new public policies in fields such as taxation, banking, anti-trust, labor legislation, foreign trade, or national defense.[7]

It is not to be inferred, however, that most economists are sitting at the right hand of policy-makers guiding the destiny of the country day by day and in detail. The great majority of economists work in relatively obscure and even humble jobs as teachers, as research workers, and in various minor posts as administrators or research assistants. Few of them ever see, much less advise, Senators or Cabinet Members or leading businessmen. Only a few economists ever occupy positions of direct power and influence or are consulted directly by men of decision. Yet the influence of all is felt and their combined impact is very great. Collectively they are custodians of our accumulated economic knowledge from the past, they are scholars continuously extending this knowledge and advancing new ideas, they are teachers patiently disseminating this knowledge, and they are consultants applying it to particular policy problems. The role of those few economists who are in direct contact with policy-workers should not be over-emphasized. They serve as one link by which the knowledge of the entire profession is transmitted to those who can make use of it. The other—and perhaps more important link—is education in all its ramifications. It is primarily through education at all levels that the knowledge of professional economists is brought to bear on social problems. I know few economists who are not also educators in some sense.

The recruitment, selection, and education of the individuals who are to join this profession is a matter of grave concern not only to the profession itself but also to the entire nation. The future of our kind of society depends largely upon our ability to manage economic affairs successfully in relation to our values. It is vital to the future of our society that successive generations of economists be trained who will have the technical skills, the broad perspective, the judgment, the leadership, and the sense of social responsibility necessary to advance the frontiers of knowledge in the field and to translate this knowledge into practicable solutions for social problems. The remainder of this study will be devoted to a discussion of the education of professional economists.

[7] For an interesting discussion of the role of economists, see: "The Economists," *Fortune*, Dec. 1950, pp. 108-112.

Chapter 4

OBJECTIVES AND STANDARDS IN GRADUATE EDUCATION

On the general objectives of graduate education in economics and the standards which derive from these objectives, I have consulted with many economists, employers of economists, graduate students, and others, and have observed graduate education in operation at many universities. I have tried to formulate the objectives and standards with a view to their practicability and acceptability to a considerable body of opinion in the profession. I cannot claim, however, that this discussion represents an authoritative statement of the views of the entire profession or of any large segment of it. It represents only my own view of the matter reached after wide consultation.

In some respects my consultation on the subject of objectives and standards was disappointing. I found that objectives and standards actually operative cannot easily be communicated to an outside observer. Faculty members have difficulty not only in achieving an objective view of the standards which they actually employ but also in expressing these standards in concrete and specific terms. An observer, on the other hand, finds difficulty in interpreting the objectives and standards of any given institution on the basis of its practices which he can know only superficially and remotely. The actual objectives and standards of an institution are to be measured not by the verbalizations of professors, by statements in glossy brochures, or by the casual observations of an outsider, but by the day-by-day experiences of students—by the courses, the examinations, the dissertations, and the actual judgments of advisers and examining committees.

I was impressed nevertheless by the fact that there are many social and institutional forces making for relative uniformity—at least in the *formal* objectives and standards actually operative in various universities. First, graduate departments of economics are ordinarily located in graduate schools which attempt to establish relatively uniform procedures and standards as laid down by the Association of American Universities and other accrediting agencies. Second, the migration of staff members from one university to another—as they go from their own graduate schools to posts in other universities or as they move from one university to another—makes possible continuous comparisons of the standards of various universities. Third, the less renowned universities, which are usually eager to gain in prestige and to avoid any suspicion of low standards, characteristically try to fol-

low the example of leading universities, and are extremely conservative as regards deviation from standard practice. Fourth, the lowering of standards by any institution becomes known within the profession and places that institution in a position of disrepute which it will eventually try to correct.[1] Fifth, attempts to raise standards very much above generally accepted levels are defeated in most institutions by the fear of adverse effects on student enrollments. All these levelling factors have resulted, I think, in fairly similar standards and fairly uniform conceptions of such terms as "master's degree," "Ph.D.," "doctoral dissertation," "graduate student in economics," etc.

I do not mean to imply that there are no differences among universities in objectives and standards, or in quality of graduate instruction, but only that there are strong nation-wide tendencies toward the institutionalization of practices and of formal objectives and standards.

Where differences exist I believe they are due partly to differences in the quality of students attracted to the various institutions. It is easy to say that each department should admit only those students who have demonstrated a high level of ability. But if a department which is geared to do graduate work, which thinks of itself as a graduate department, and which possibly needs graduate assistants fails to attract students who meet this abstract standard, it will be strongly tempted to lower admission requirements. Having admitted substandard students such a department will hardly want to deny all of them degrees. But more important, the faculty's concept of a proper standard will be influenced by the performance of the actual students they know. Their concept of a "good student" or an "average student" will be modified. Accordingly, the admission of students of low quality will have the ultimate effect not only of lowering operative standards but also of lowering abstract or ideal standards as well.[2]

General Objectives

Graduate education in economics, in this country, consists of a program of studies which can be completed in a minimum of three years by a well-prepared and capable student. The program culminates in the award of the Ph.D. However, only about one out of 10 students

[1] This corrective process is, however, by no means automatic or inevitable because the faculties of some departments do not have enough contact with the profession-at-large to make the force of professional opinion effective.

[2] It is in this way that the master's degree may have become depreciated as a result of the pressure on secondary teachers to earn such a degree; similarly the Ph.D. may have been depreciated by the pressure on college teachers to take doctorates. The result of such pressure was the admission to graduate school of many persons who could not meet accepted standards, thus to lower the average quality of graduate students, eventually to lower both operative and ideal standards.

who enter graduate study in economics ever receive the Ph.D. The others drop out at some earlier point—some after only a few months of graduate study, others at the completion of the master's degree, some prior to the preliminary examinations for the Ph.D., and some prior to completing the doctoral dissertation.[3] Many of those who do not push through to the Ph.D. nevertheless pursue careers as economists or careers in which economic education is useful. Thus, in the graduate program in economics, various individuals spend different amounts of time—the amount in each case depending upon objectives, capabilities, and personal circumstances.

The primary objective of the great majority of these persons is to prepare themselves for positions in which they will use their economic education. In this sense, it is vocational or professional education.[4]

Table 10 presents data on the immediate and longer-range career objectives of respondent graduate students who were in residence during 1951-52. These data indicate that about one-fourth of the first-year students are headed toward higher education, another fourth toward government, and more than a third toward business—many of the latter hoping for executive or operating jobs. In the longer-run, somewhat more of the first-year students are hoping for jobs in higher education and somewhat fewer for jobs in government and business. The advanced graduate students, on the other hand, are predominantly directed toward higher education. For most of them government and business are second choices. My conversations with graduate students at many institutions revealed, however, that many of those who prefer teaching do not consider it a strong preference. The figures on career objectives of present graduate students (table 11) correspond closely with the actual positions held by former graduate students in economics.[5]

Many observers deplore the tendency of students and others to look upon graduate education as vocational training. In particular, they object to the specialization that sometimes results from efforts to train people for specific jobs. They argue that the purpose of graduate work

[3] For estimates of student mortality, see p. 92.

[4] "The graduate school has become a professional, even a vocational, school giving professional and vocational training in the same spirit as the law school, the medical school, or the business school. It receives the products of the liberal arts colleges and prepares them for certain trades, industries and professions. It manufactures technologists whether in philology or physics. It leaves general education to the college. If it concerns itself with research, it is only because, as a teaching problem, research activity is one part of the training of many kinds of technologists, but by not means of all of them." Howard Mumford Jones, "Post-War Planning for the Graduate Schools," paper presented at the 17th annual meeting of the Deans of Southern Graduate Schools, October 19, 1943, p. 11.

[5] Cf., Table 1, p. 10.

TABLE 10.—CAREER OBJECTIVES OF GRADUATE STUDENTS IN RESIDENCE DURING 1951–52[a]

	First-year students[b]		Advanced students[c]	
	Immediate	Longer-run	Immediate	Longer-run
Higher education, total	25%	34%	79%	69%
Teaching	19	28	54	58
Research, administration and other	6	6	25	11
Government, total	24	20	11	15
Research	10	6	7	7
Administration	14	14	4	8
Business, total	38	25	6	7
Economic work	14	3	4	2
Executive and other	24	22	2	5
Other	10	12	2	2
No answer	3	9	2	7
Total	100	100	100	100

[a] Schedule IX.
[b] 59 respondents.
[c] 81 respondents.

is to produce scholars—persons who have a deep and broad knowledge of their subject and of its development, who are intent upon a life of study and investigation, and who are interested in contributing to the advancement of the field. They argue that while it is well for scholars to find jobs, yet scholarship should not be compromised in the interests of vocationalism. In opposition to this point of view, others hold that scholarship is highly desirable in its place but that there are many specialized technical jobs for which competent people must be trained and that one of the tasks of graduate schools is to provide this training.[6]

Most economists are not perturbed by this conflict of objectives. On the whole, they believe—at least in their field—that the objectives of scholarship and of vocationalism can be reconciled. They believe that the best preparation for professional work in economics consists of education having as its objective the development of scholars. They are almost unanimous in their condemnation of specialized programs of study with vocational emphasis. They believe that the task of graduate education is to produce scholars who have an understanding of the fundamentals of economics and the tools of research in the

[6] Cf., President's Commission on Higher Education, *Higher Education for American Democracy*, Government Printing Office, Washington, 1947, pp. 86-9.

TABLE 11.—FIRST REGULAR EMPLOYMENT AFTER TERMINATING GRADUATE WORK, AND EMPLOYMENT IN 1952, OF FORMER GRADUATE STUDENTS IN ECONOMICS[a]

	Persons who received Ph.D. in 1939–1940[b]		Persons who received Ph.D. in 1949–1950[c]		Persons who received master's degree in 1939–40 and 1949–50[d]	
	First regular employment	Employment in 1952	First-regular employment	Employment in 1952	First regular employment	Employment in 1952
Higher education	85%	67%	78%	71%	22%	25%
Government	9	22	11	18	24	20
Business						
Economic work	2	7	4	5	6	7
Executive & other	2	4	3	2	32	31
Other	2	—	1	2	7	4
No answer	—	—	3	2	9	13
Total	100	100	100	100	100	100

[a] Schedule X.
[b] 45 respondents.
[c] 119 respondents.
[d] 54 respondents.

field. They feel that individuals with this equipment can adapt to specific vocational tasks easily and quickly. They are under no illusion that all graduate students will in fact become scholars, but they are firm in the conviction that education designed to produce scholars will in the end also produce the most capable technicians.

They are led to this conclusion partly by the tradition of economics, which is a scholarly tradition, and partly by the nature of the subject matter of their field. Economics is largely a study of the economic system. The economic system is a complex mechanism, all the parts of which are interdependent and no part of which can be grasped until it is understood in its entirety. It is an evolving system, the present form of which cannot be understood without reference to its prior development. And ideas and theories about the system cannot be fully understood without reference to the intellectual heritage from which they have emerged. For these reasons, most economists believe that a person who wishes to function successfully in the profession—whether in a governmental bureau, a business firm or a college—will be well-advised to aim for broad and fundamental knowledge of the field such as would be obtained by one who expects to devote his life to scholarly research. It is true that not all professional activities of economists

require great erudition. Not everyone need be, or can be, a great scholar. But all require knowledge of fundamentals and breadth of understanding.

There are other impelling reasons for this emphasis upon fundamentals. First, it is recognized that a finished economist cannot be produced in the few short years of a graduate school program. Mastery of this field, like any other scholarly field, requires a lifetime—not one to three years. The problem of graduate education, therefore, is to concentrate on those aspects of the subject which can best be acquired through formal education and which will best launch the student on a lifetime of self-education. The problem is to teach people how to learn, not merely to teach them specific subject matter. It is precisely the fundamentals—e.g., economic theory, economic history, history of ideas, and research techniques—which are most efficiently acquired through formal education and which provide the groundwork for later self-education. As one eminent businessman wrote in a letter to me:

> One of the great dangers of the present day is the unwillingness of technical students to realize that they are merely learning the rudiments of their profession and that once they get into practice they will be living the history of their profession rather than merely utilizing what they learned during their training period.

Second, in their graduate years students often do not know precisely what work they will follow. Therefore it is best at that stage to concentrate on those aspects of the subject having wide applicability. This point is strengthened by the fact that many economists shift in the course of their careers from one kind of employment or activity to another. Indeed, the frequency and the ease with which economists shift back and forth between teaching, government, and business is further evidence that the work of economists—wherever they may be placed—has a significant common element and that much the same kind of formal education is appropriate for all economists regardless of their specific jobs.

All of these considerations lead to the conclusion that, even though the employment opportunities of economists are expanding into new fields, the formal education of economists should place emphasis on fundamentals and scholarship.[7]

[7] Some of my critics have argued for changing the emphasis here. For example, one writes: "While I should agree upon the need of a common core for all, I think I should advise different emphasis for various groups. For those going into undergraduate teaching I should put a good deal more emphasis upon economic history, history of thought, and philosophy and somewhat less emphasis upon quantitative techniques. Whereas for those going into government service I should put a good deal more emphasis upon these quantitative techniques."

Standards

It is always tempting when considering educational philosophy to propose uniform and detailed minimal standards which all students of a given type or all candidates for a given degree should attain. Such uniformity may be possible in a field like accountancy, but it is probably not possible—and surely not desirable—in economics. There is need for economists of widely varied interests, capacities, and skills. Some should pursue historical studies, others should explore points of contact with social psychology; some should study the steel industry, others the Soviet economy; some should investigate the theory of employment, others linear programming; and these various specialists should interact with one another in mutually helpful criticism.

There can even be diversity among universities. It is not necessary for each one to provide opportunities for formal study in all of the fields or from all points of view: some can specialize in one direction and some in another according to their facilities, staff, and financial means. The only problem is to insure for the nation as a whole that a flow of competent persons will be forthcoming to enter all of the various sub-specialties of economics.

The need for variability suggests that it would be unwise for any professional association or accrediting agency to attempt to prescribe uniform standards or requirements for all graduate students of economics at each level. Economics as a discipline has not coalesced to the point of having an acknowledged set of requirements which every student must meet before he is eligible for a degree or for a license to practice. Yet it is possible and reasonable to advance certain standards to be applied to graduate students in economics.

In the remainder of this chapter, I shall attempt to formulate minimal standards that should be attained by candidates for the Ph.D. and for the master's degree at the time the degrees are awarded. In formulating these minimal standards, I have tried to avoid wishful Utopianism. I have attempted to consider the realistic conditions under which most graduate faculties work. Yet I feel that the minimal standards suggested are higher than those actually in operation in many universities. In my judgment, if these standards were scrupulously followed, the requirements for advanced degrees in economics would be raised perceptibly.

I should emphasize that these standards represent my own personal view arrived at in consultation with many interested persons. In no sense do they represent the official position of the American Economic Association or of any other group.

Standards for the Ph.D.

I shall try to express the standards to be met by a Ph.D. candidate under five headings: (1) personal qualities, (2) knowledge, (3) abilities and skills, (4) professional orientation and motivation, and (5) capacity for growth and adaptation. These standards are intended to apply at the time the degree is awarded, though of course they may influence standards for admission to, and advancement in, graduate study.

1. *Personal qualities.*
   - (a) *Intelligence.* In general "intelligence" or "scholastic ability," a Ph.D. candidate should rank at least among the top 15 per cent of all college graduates. This suggests that he should be the kind of person who might have earned mostly A's and B's in undergraduate work in a good university or college, or who might have been among the top 15 per cent of all college graduates in his score on appropriate intelligence tests.[8] This standard is expressed in terms of undergraduate grades or intelligence tests because course grades in graduate work are notoriously undiscriminating.
   - (b) He should be a person capable of intellectual maturity and judgment.
   - (c) He should have the emotional stability necessary to function in the kinds of positions economists are called upon to fill, i.e., he must be sufficiently adjusted that he can be conscientiously recommended for a position.
   - (d) He should be a person of integrity and good character.

2. *Knowledge.*
   - (a) *Common Core.* Although there is, and should be, great diversity among economists in their intellectual equipment and interests, neverthless there is a substantial nucleus of subject matter which should be common to all economists regardless of their special interests. It is this common core which should bind the profession together and should enable economists

[8] The upper 15 percent appears to be somewhat above current standards. As shown by Dael Wolfle and Toby Oxtoby, "The average person earning a bachelor's degree scores about 126 on the Army General Classification Test scale. About 10 percent of the total population earns a score this high. The average graduate student gets a score of around 129. About 7 percent of the total population does as well. The average Ph.D. in science makes a score of approximately 138. Only about 2 per cent of the total population makes a score that high." ("Distributions of Ability of Students Specializing in Different Fields," *Science*, Sept. 26, 1952, p. 311.) These figures suggest that the Ph.D. in science are generally in the upper 20 percent of all college graduates.

of all types and persuasions to communicate with one another. This common core consists primarily of economic theory including value, distribution, money, employment, and at least a nodding acquaintance with some of the more esoteric subjects such as dynamics, theory of games, and mathematical economics. Other important parts of the core are economic history, history of economic thought, statistics, and research methods. No one has a claim to a Ph.D. in economics without a rigorous initiation into these fields.

(b) *Special fields of economics.* Each candidate for a Ph.D. should be prepared in two to four special fields of economics in addition to the common core. He should present one of these fields as his major specialty. In that field he should have detailed and comprehensive knowledge. In each of the other special fields, his preparation should be equivalent to that which could ordinarily be acquired through a one-year graduate course and supplementary independent study. In case a student wished to present a field from the common core as his special field, e.g., economic theory or statistics, he should be permitted to do so by presenting evidence of mastery beyond that required for all students as part of the common core. The special fields should not be thought of as distinct and separate from the common core. Rather, they should be regarded as a vehicle for bringing the various concepts and methods of the common core to focus on a particular set of problems.

(c) *General knowledge of the entire field of economics.* Because the field of economics is broad and complex, it is not feasible for Ph.D. candidates to achieve intimate knowledge of every part of the field. Yet, the economy is a system, all the parts of which are interrelated and no part of which can be fully understood without knowledge of the whole. Regardless of his specialty, therefore, an economist is likely to find that some knowledge of most aspects of the subject will be useful if not indispensable. Every economist, regardless of his special field, probably should have some acquaintance with international economics, public finance, banking, agricultural economics, industrial organization, labor, insurance, business cycles, transportation, public utilities, etc. The need for this general knowledge extends to the various fields of business such as management, investments, corporation finance, personnel, accounting and marketing. Candidates for the Ph.D.

should demonstrate breadth of knowledge in many areas of economics outside the core and outside their special fields. Their knowledge in each area should approximate that which could be obtained by a careful reading of elementary "survey" textbooks in each of the fields. However, it is not to be inferred that they should be required to read these books or to take a multitude of elementary courses. It is suggested only that they should be required to gain breadth of general knowledge in economics. Much of this general knowledge is more or less spontaneously picked up by alert and intellectually curious graduate students as they enter into discussions with other students, hear lectures, look up factual points referred to in their reading, scan the news about current economic problems, etc. Yet the required breadth probably will not be acquired by most students without some special effort.

(d) *Research tools*. There are many research tools that can be put to the service of economics, among them, foreign languages, mathematics, accountancy, law, public opinion polling and other socio-psychological techniques, use of historical records and archives, and others. (Statistics is omitted here because it is regarded as a special field of economics included in the common core.) Each candidate should have enough knowledge of all these tools to understand how each can be useful. Indeed, a case could be made for requiring all Ph.D. candidates to achieve considerable competence with each of these tools. Yet this seems wasteful and unnecessary since not all economists use all of these tools. On the other hand, it is important that a steady flow of economists be produced who do have competence in each of these fields. For example, while it may not be necessary for every economist to have a knowledge of mathematics, it would be desirable to turn out many who can use mathematics. While it may not be necessary for every economist to know Russian or German or Chinese, it would probably be useful to have some with knowledge of these and of other languages. I should argue, therefore, that every Ph.D. candidate should be required to demonstrate the ability to use at least *one* important research tool that is relevant to his special interests. This means more than the passing of a perfunctory examination such as the present foreign language examinations have become. It means that the student must demonstrate ability to use at least one research tool effectively. If

the tool is a language, he must be able to read difficult materials rapidly and accurately. If the tool is mathematics, he must be able to read mathematical literature with facility and to use mathematics in his own research—not merely to have a superficial knowledge of "mathematics through calculus," etc.

(e) *Fields outside economics*. Broad as is the field of economics, the candidate for the Ph.D. has need of general knowledge—in some cases quite specific knowledge—outside economics.[9] He needs to know something of logic, scientific method, ethics, world geography, world history, history of ideas, industrial and agricultural technology, law, government, international relations, psychology, and current social and political events. Much of this background he may have acquired in his undergraduates years and much of it he may have absorbed through general reading and daily living. But not all of it comes to him automatically. He should specifically be required to repair gross defects in his general intellectual background before he is awarded a Ph.D.

3. *Abilities and skills*.

(a) *Reading*. A candidate for the Ph.D. in economics should be able to read with comprehension any literature in the common core except literature involving higher mathematics or some unusual technical apparatus. He should be able to understand its relevance to problems and issues. He should be able to place it in the stream of the history of ideas. He should be able to interpret it to others and to discuss it intelligently. If his special field is one in which mathematics or other unusual technical apparatus is commonly used, he should be able to read *all* literature in that field with comprehension. In fields of economics outside the common core and his special field, he should be able to read with comprehension all except the more difficult literature.[10]

(b) *Writing*. The candidate for the Ph.D. should be able to

[9] Cf. Association of American Universities, "Report of the Committee on Graduate Work," *Journal of Proceedings and Addresses*, 1948.

[10] It has been suggested that a Ph.D. should be able to read the *American Economic Review*. This journal is mentioned because the articles pertain chiefly to the leading sub-fields in economics and are chiefly non-mathematical. Some argue that this is too low a standard in the sense that any economist should be able to read more difficult literature than is in the *Review*. I have been told, however, by several experienced professors who hold Ph.D.'s in economics that this is too high a standard which they themselves would be unable to meet.

write either brief or extended discourses on subjects pertaining to economics. He should be able to write for both technically trained and lay readers. This writing should be logically organized, clearly expressed, and formally correct. It is perhaps too much to ask that it also be effective and interesting. The ability to write logically, clearly, and correctly is an essential part of the equipment of an economist, and every candidate should be required to meet this standard before receiving a Ph.D. Indeed, present requirements regarding literary ability are probably not as high as they should be. One of the most persistent criticisms by employers is that many economists—even those with the Ph.D.—lack adequate literary skill.

(c) *Speaking*. In almost every activity which engages professional economists, speaking ability is an asset. This is true not only in education but also in business and government. In the latter two fields, the ability to speak is needed more often in discussions, conferences, and negotiations; whereas in education it is needed for classroom presentation and public lectures. But in all of these employments, an economist's effectiveness derives partly from his facility in oral expression. In view of this, a Ph.D. candidate should be able to speak clearly and coherently before a class, a seminar, a public audience, or a committee. He should be able to do this before both technically-trained economists and lay groups. He should also be able to conduct himself effectively in conference or in informal discussion. Ability to participate effectively in informal discussion is perhaps the most important of the speaking (and listening) skills. The give and take of discussion is one of the best means of generating economic ideas and of subjecting them to the test of criticism and competition.

The standard for speaking should not be set too high, because ability in this field—perhaps even more than others—comes through experience. Yet the candidate should show sufficient facility to indicate that he is capable of adequate development. The standard for writing and speaking should be considered jointly. If a student is capable in written expression but weak in oral expression, or vice versa, the weakness in one can be partially offset by strength in the others. There are professional activities in which the use of each mode of communication is predominant. But if the student

is conspicuously deficient in both, there is grave question whether he can function effectively as an economist, and it is doubtful if he should be considered for a Ph.D.

(d) *Teaching.* At the completion of his Ph.D., the candidate should be prepared, at least in terms of mastery of content to teach the following courses: principles of economics, the first undergraduate course in his special field, and (given time for adequate preparation) intermediate economic theory. This standard should apply to all students—regardless of whether they intend to enter teaching as a career. A man who is unable to meet this standard will not be qualified for other professional positions ordinarily open to Ph.D.'s in economics.

(e) *Research.* Because research activities are so varied, it is difficult to define standards in this field meaningfully. Traditionally the Ph.D. has been regarded as a "research" degree, and the primary purpose of the educational program leading to the degree has been to train research scholars. It has been held that the dissertation should be a demonstration of the candidate's ability to make "important and original contributions to knowledge." This has implied that a candidate for the Ph.D. should be able to function at a very high level in research. The phrase "important and original contribution to knowledge" is still found in many graduate school catalogs, but in most departments of economics it does not form part of the operative standards or at most the phrase remains with the word "important" deleted. Only occasionally, in fact, does a dissertation turn out to be a significant contribution to knowledge. Today, the young Ph.D. is regarded not necessarily as a person who has made significant contributions to knowledge but rather as one who has (or should have) become generally oriented in the field and who has learned something about its basic methods of research.[11] It may be hoped that he will some day produce important research but that is not to be expected immediately. Even this hope is not held too sanguinely. As is well known, only a minority of Ph.D.'s ever produce important original research.

It is obvious, then, that a return to the older concept of the Ph.D. would represent a drastic tightening of standards

[11] Cf. Elbridge Sibley, *The Recruitment, Selection and Training of Social Scientists*, Social Science Research Council, New York, 1948, p. 83.

which would eliminate the majority of candidates. No one seriously proposes this. On the other hand, no one wishes to abolish all standards regarding competence in research. Perhaps the following are the things every candidate should be able to do before he is awarded a Ph.D.: (1) to utilize economic theory in analyzing the consequences of changes in demand, in supply of factors, in technology, in industrial organization, in governmental policy, etc.; (2) in some of the simpler cases, to devise procedures for testing the hypotheses suggested by theory; (3) to serve as a useful assistant or as a member of a research team, assuming responsibility for carrying out substantial blocks of work under the general direction of a mature research worker; (4) to initiate, design, and execute limited studies involving the collection and interpretation of primary data or the analysis of data collected by others. If these abilities were to be rigorously required, a substantial raising of present minimal standards would be involved. Nevertheless, these standards are more modest and more realistic than the older standard which purported to require an important and original contribution to knowledge. The obvious conclusion is that we cannot hope to make every Ph.D. into a Wesley Mitchell or a J. M. Keynes. We can, however, insist that they know something about the basic methods of research in economics and that they be able to apply these methods in relatively limited research situations.[12]

(f) *Writing for publication.* There is some question as to whether a condition for granting the Ph.D. should be the ability to write articles, reviews, monographs, books, etc., of a quality suitable for publication in recognized journals or through commercial channels. We have already considered literary ability and it is assumed that the candidate should be able to write logically, clearly, and correctly. The question here is whether he should be able to produce works the content of which would merit publication in a professionally reputable organ.

The traditional answer to this question was affirmative. This was part of the theory underlying the rule of mandatory publication of dissertations. But this rule has by now virtually disappeared and today there is little emphasis on pub-

[12] The requirements concerning teaching and research might be considered jointly in the same way as the requirements regarding speaking and writing. Excellence in one might offset deficiency in the other.

lication as a requirement in connection with the granting of the Ph.D. There are some, however, who decry the passing of the publication requirement and the standard it represented. At a few universities, an attempt is being made to institute another standard, namely, that a candidate for a Ph.D. should be able to write an article acceptable for publication in a leading professional journal. All admit that not every candidate could in fact get such an article accepted, if for no other reason, because there are simply not enough journals to carry articles by each year's crop of Ph.D.'s. But the proposed standard is not that the candidate should actually *publish,* but only that he should be able to write an article of approximately the same quality as those which are published. Others have proposed that a candidate should be able to write a publishable review of a book in his special field, still others that he should be able to write an elementary textbook in his field.

My judgment on this question is that publication has been grossly over-emphasized. For the same reason that most Ph.D.'s cannot be expected to make important and original research contributions, most of them cannot be expected to turn out writing of a publishable quality. Few dissertations are published either in entirety or in article form, and in fact many recipients of Ph.D.'s never produce significant publications. To hold rigorously to a publication requirement could have only two effects—both of them undesirable: either the drastic raising of standards so that only a fraction of the present flow of candidates could be awarded degrees, or the proliferation of second-rate publications and a drastic lowering of the standards required for publication. As it is, the emphasis on publication as a means to prestige and professional advancement has the undesirable effect of encouraging a flood of unimportant and unconsidered articles, papers, pamphlets and books. How much better if, in graduate school, students were led to become more reticent and self-critical concerning their intellectual output instead of being encouraged to publish whether or not they have something important to contribute.

But merely to say that the encouragement of publication has been overdone does not dispose of the problem of what standard to set for the Ph.D. candidate regarding writing. I believe that he should be able to do at least the following kinds of things: (1) write an acceptable memorandum,

addressed to his non-economist superior regarding some recent development in his field, reporting on a research project in which he has been engaged, or stating his views on a public policy proposal pertaining to his field; (2) write a short statement on some technical point or some recent event for the use of undergraduate students; (3) write a report for technically-trained readers on a research project in which he is engaged; (4) assist in preparing testimony to be given before a legislative committee; and (5) write critical analyses or syntheses of current literature in his field. In the above list, I have refrained in each case from indicating that he should be able to produce writing of a quality suitable for publication. I had in mind, however, that the quality should be very close to publishable. Indeed, I might concede that he should be able to write acceptably for publication in a house organ in the business firm where he is employed, in a specialized government document, in the kind of academic publications usually labeled "Studies In———." Perhaps he should be able to write a book review that would be acceptable for publication in a leading journal. But I believe it would be unrealistic to expect every Ph.D. candidate to be able (either immediately or at a more remote time) to contribute articles to a leading journal, to write for periodicals having national circulation, or to write books for commercial publication.

4. *Professional orientation and motivation.*

(a) The candidate for the Ph.D. should exhibit a serious interest in economics, a will to advance his knowledge of the subject, and a desire to make contributions to it. He should be dedicated to a life of study and investigation in the field. He should set high standards for his own professional work, and should hold shoddy or intellectually dishonest work in contempt.

(b) He should be imbued with the values that are traditional with scientific workers in all fields: namely, freedom of inquiry, freedom of expression, respect for logic and objective evidence, the obligation to report findings fully and accurately and to submit them to criticism, the desire to advance knowledge regardless of its immediate utility, and a concern to utilize the findings of science in ways that will benefit mankind. This value system is difficult to apply to economics, a discipline which operates in an area that bristles with

interest groups and ideologies. Economists, moreover, are part of the society they study. They are themselves members of interest groups and believers in ideologies. Therefore, scientific integrity and objectivity is for them much more difficult than for chemists, astronomers, or anthropologists. This means that the problems of scientific integrity and objectivity, which can almost be taken for granted in other fields, must be handled with special care in economics. An economist who wishes to follow the canons of science must be concerned with freedom of inquiry and freedom of expression even for those whose ideas he does not accept; he must have respect for logic and evidence even when they lead to conclusions he dislikes; he must report findings fully and accurately regardless of the interests that may be affected; and he must be interested in the advance of economic knowledge all along the line whether or not it supports his special views. It becomes incumbent upon economists, therefore, to attempt to understand their own ideological biases and to guard against them in their professional work. Economists must be constantly on guard lest they fail to distinguish between their beliefs and objective fact, or lest they subconsciously select evidence to fit their beliefs. The graduate school is the place where much can be done to help economists understand the perils of ideological biases and the meaning of detachment and objectivity.

This does not imply that graduate students should be decontaminated of all ideologies or that they should be encouraged to take passive or neutral positions on social issues. It implies only that they should become aware of the difference between belief and fact, that they should recognize their own personal biases, and that they should understand the nature of scholarly integrity.

5. *Capacity for growth and adaptation.*

Graduate study should be directed toward acquiring the fundamentals of the subject and toward erecting an intellectual foundation on which further building will be possible. In accordance with this objective, the graduate years should not be devoted to intense specialization. That is to come later. It is to be expected that in 10 or 20 years, after a candidate has acquired years of experience and self-education, he will be able to achieve many things which are beyond him as he emerges from graduate school. It is possible that

standards for the Ph.D. should be stated in terms of the kind of economist the candidate can reasonably be expected to become in 10 or 20 years, rather than in terms of his actual accomplishments to date. At any rate, it is evident that one of the standards should be capacity for satisfactory professional development. This capacity must be measured in terms of his motivation, initiative, and energy as well as his intellectual equipment; and in terms of his ability to adapt to new developments in the field as well as to carry forward present modes of thought.

Care must be exercised in applying this standard. It sometimes opens the way to rationalized laxity on the part of examining committees. It is easy for them to say, when faced with the unpleasant task of appraising a questionable candidate: "He isn't very strong, but he may develop given time for greater maturity and experience." I believe that this is usually sheer rationalization. In most cases, those candidates who do not meet the standards for the Ph.D. are the very ones who do not have the capacity for growth. Success in the graduate period is the most reliable index of the intellectual and motivational qualities that will lead to professional growth after the graduate years.

Conclusions Regarding the Ph.D.

I have presented a long array of minimal standards which might be employed in appraising candidates for the Ph.D. It is obvious that such an array of standards should not be applied mechanically. It is equally clear that it would be foolish to reject some candidate who failed to meet every single standard. For example, one might easily pass a candidate whose speaking ability was sub-standard. As one professor commented, "I would gladly grant a Ph.D. to a deaf mute if he had the required intellectual qualities." Similarly, one might not wish to hold rigidly to standards regarding writing ability, teaching, general knowledge, personal adjustment, or professional orientation. Rather, all of the standards should be regarded as a unified set of criteria by which candidates are to be judged. Ideally, a profile might be constructed for each candidate indicating his score with respect to each of the standards. Any candidate would be expected to score higher in some respects than in others. If a given candidate should fall below minimum on one or a few counts, this might be overlooked if his score on others were distinctly above the minima. However, none of the standards is unimportant or to be passed over lightly; hence, any candidate who falls below the minimum in any one respect should

fail unless he shows genuine distinction in some other equally important area. With some of the standards, of course, no compromise should be made. This would be true especially of general intelligence, motivation, preparation in the common core, preparation in the candidate's special field, and reading ability.[13]

These standards have been designed on the assumption that little differentiation is to be made between those students who are expecting to enter college teaching and those who are pointed toward research, consultative, and administrative positions in business, government, or research organizations. It has been frequently suggested that these two types of students should be set apart and given different types of education.[14] There is strong evidence that members of the economic profession do not favor such differentiation, although some would argue for more attention to the training of college teachers. Out of 27 institutions reporting, only 4 indicated that any effort is being made to differentiate the two types of students and these indicated that this was done only by means of informal adjustments in the programs of individual students. When graduate professors were asked to give an opinion on the desirability of such differentiation, the overwhelming majority were opposed. They felt that the diversity of student objectives is no handicap to the instructional program, and that the several types of students should have virtually the same educational programs.[15] The professors were almost unanimous in their opposition to the proposal that the graduate school should be divided into two units, one for the training of prospective college teachers and the other for the training of research workers. In short, most graduate professors feel that the task of the doctoral program is to produce *economists* who will have the basic equipment and flexibility to function in any of the vocational fields open to economists. They feel also that research training is essential in the education of college teachers.

On the whole, the above array of standards has been expressed in terms of what the candidate should know and be able to do rather

[13] One of my critics writes: "I have very mixed feelings regarding these standards. Sentence by sentence I agree with almost everything you say; yet as a whole I am somewhat uneasy. (a) You seem to be applying a double standard—an ideal one for things that can't be checked and a more realistic one for things that can be, (b) these are not in any meaningful sense minimal standards—though some individual ones are, (c) in the standards regarding knowledge, you ask too much and too little—too much breadth and too little depth."

[14] See, for example, Howard Mumford Jones, *Education and World Tragedy*, Cambridge, 1946.

[15] While most departments are oriented largely toward preparing college teachers, a few are attempting to specialize in training civil servants or economists for business. I do not mean to oppose such specialization so long as it does not result in inferior or narrow education.

than in terms of abstract qualities such as initiative, imagination, creativity, perseverance, self-discipline, critical facility, etc. This is not to imply that these qualities are unimportant. Quite the contrary. They are simply subsumed under the standards which are expressed, so far as possible, in operational terms.

To summarize the standards suggested, I can hardly do better than to quote from a report of the Committee on Professional Training of the American Chemical Society on the "Philosophy of Graduate Training at the Ph.D. Level:"[16] "The objective of graduate training at the doctoral level is to stimulate and develop in properly selected and qualified students the power for creative achievement in their chosen fields. In order to accomplish this these students must be given a thorough grasp of the fundamental sciences underlying their general fields of special interest. Their ability to recognize unsolved problems should be developed and they must be trained in the effective application of modern methods and techniques to the solution of these problems. They should be trained in logical thinking and should be helped to develop the ability to express themselves clearly and forcefully both orally and in writing. Their interest and enthusiasm for research and creative work should be fostered."

Standards for the Master's Degree

Opinions in the profession about the objectives of the doctoral program and the significance of the Ph.D. are much more clearly crystallized than those about the master's degree. There is a tendency in many quarters, quite mistaken I think, to belittle the master's degree, to regard it as an unimportant vestige, or even to eliminate it. It is spoken of as "a fifth year of undergraduate work" or "as a consolation prize" for those who can't qualify for the doctorate, or as a "catch-all" degree for those who want a little specialized graduate training, or as a "union card" for secondary school teachers. It is true that the master's degree is sometimes all of these things, but it does not follow that it is nothing more or that it should be despised, ignored, or eliminated.

A large part of the actual graduate teaching of economics is bestowed upon students who will never receive the doctorate. A great majority attend graduate school for only one or two years. The number of master's degrees granted each year is four or more times the number of doctorates awarded, and there are many students who receive no graduate degrees whatever. The great bulk of graduate study, then, is done in the earlier years or, roughly, at the master's level. Clearly,

[16] *Chemical and Engineering News*, Jan. 19, 1948, p. 167.

we should consider carefully the program in the earlier years of graduate study, the role of the master's degree, and the standards it should represent.

The many graduate students who do not attain the doctorate, and for whom the master's degree is likely to be a terminal degree, may be divided into six groups:[17]

1. Prospective secondary school teachers.
2. Those interested in specialized vocational training, e.g., security analysis, market research, specialized statistical work, etc.
3. Those merely adding a fifth year of education with career plans indefinite.
4. Prospective teachers in junior colleges or colleges who do not intend to try for the doctorate.
5. Those hoping to enter professional work as economists in government or business without commitment to a narrowly specialized field.
6. Those who hope to earn the Ph.D., many of whom will fall by the wayside before attaining the doctorate for reasons of intellectual deficiency, lack of motivation, inadequate finance, poor health, attractive vocational opportunities, etc.

On the basis of an inquiry to graduate professors and from data on the actual career objectives of graduate students (see table 10), I would judge that the percentages of first-year graduate students in each class would be about as follows:

Prospective secondary teachers	5%
Specialized vocationalists	5
Fifth year of liberal education	15
Teachers in higher education	10
Prospective economists in business and government	30
Prospective or hopeful candidates for the Ph.D.	35
Total	100

It may be properly argued that not all of these classes of students should have identical educational programs. Yet it can also be argued that only those who meet certain minimal standards should be granted the master's degree in economics. Perhaps other degrees should be used for those who want and deserve a master's but who do not meet the requirements for the master's degree in economics. But the degree

[17] Cf. New England Conference on Graduate Education, *Report of Subcommittee on Requirements for Master's Degree*, 1946.

in economics should be maintained as signifying a certain level of ability and certain achievements *in economics*.

Those who do not meet these standards may have excellent reasons for pursuing their particular studies, but they should not be awarded the master's degree in economics. Thus, if a prospective secondary teacher wishes to devote much of his time to the study of educational methods, or to the study of a variety of social sciences, without mastering the minimal requirements in economics, this may be entirely defensible, but it should lead to a degree in "education" or in "teaching of the social studies"—not in economics.[18] If an individual wishes to enter a program of study pertaining directly to security analysis or to statistical methods in sales forecasting or to some other aspect of a job, without meeting the requirements in economics, perhaps he should be permitted to do so, but he should not be awarded the master's degree in economics. Similarly, if a student wishes to round out his education with a fifth year of liberal education, without meeting the requirements in economics, he should be permitted to do so—but again without the expectation of receiving a master's degree in economics.

Nevertheless it can be argued that many students in each of these three groups would be wise to meet the requirements in economics rather than merely to pursue narrow vocational interests or to become dilettantes. My conversations with educators suggest that the profession of teaching social studies in secondary schools would be enriched if it included more persons who have substantial training in economics. At present, most teachers of the social studies are, quite properly, trained in history. Many believe, however, that it would be desirable if a somewhat larger number of these teachers were well-trained in economics (or in sociology or political science). Those who wish to pursue some specialized vocational training are often deluded into thinking that the only education they need is that which is directly germane to the particular job on which their attention is fixed. They sometimes forget that versatility and ability to develop come through laying a foundation on which many different kinds of skills can be based rather than through acquiring one specialized skill that is not easily transferable. If one wishes to be a forecaster of sales, it is better in the long run for him to know about the fundamentals of statistics and economics than to know the latest techniques for gauging next month's sales of toothpaste. Likewise, many of those who wish merely

[18] Cf. Roger P. McCutcheon, "The Master's Degree and the Teacher Requirements," *School and Society*, Sept. 22, 1951; and Committee on Graduate Work, Association of American Universities, "The Master's Degree," *Journal of Proceedings and Addresses*, 1945, p. 14.

to add a fifth year of general education may be well-advised to buckle down to a basic regimen in economics or some other solid field rather than to pick up scattered and unrelated samples of superficial knowledge. All of this argues for a solid program in economics leading to the master's degree for many students in the first three of the six groups listed above. And all students in the last three groups, it may be presumed, should be interested in such a basic program in economics. These include the prospective college teachers, the prospective economists in business and government, and those planning to go on to the Ph.D.

The conclusions, then, are (a) that only those students who measure up to the requirements for a master's degree *in economics* should receive this degree, and (b) that most students who are interested in some aspect of economic study probably would do well to try to meet these requirements. Apparently, a large majority of the profession agrees with this position. Only 4 of 50 reporting departments indicated that they attempted to offer separate programs for some of the several classes of students. In a questionnaire directed to graduate professors of economics, I asked if they felt that the diversity of career objectives among first-year students was a serious handicap to the instructional program. More than two-thirds answered in the negative, and only about 7 per cent gave an unqualifiedly affirmative response. I also asked if they felt that the several types of students should be distinguished and distinct programs arranged for some or all of the groups. More than half answered in the negative and only about 10 per cent were definitely favorable. Of those who answered negatively more than half indicated that the same type of program would be suitable for most or all students, and that minor variations in student needs could be easily handled on an individual basis. Others felt that the number of students does not justify several programs, that many students are too uncertain regarding their future plans to warrant further specialization, or that the creation of several programs would lead to undesirable specialization. I feel that all of these are cogent arguments. My conclusion is unequivocally that there should be one basic program and one degree for first-year graduate students in economics regardless of their ostensible career objectives, that this program should be flexible enough to take care of variations in individual backgrounds and needs, and that it should be rigid enough to insure that everyone who receives a master's degree in economics meets the standards which that degree should symbolize.

Regarding those students who are planning to proceed to the Ph.D., the issue is frequently raised as to whether they should actually take the master's degree on the way to the Ph.D. Only 7 of 36 reporting

universities ordinarily required the master's degree of students who are to become candidates for the Ph.D. About half recommend that the student take the master's degree en route to the Ph.D. A few universities are discouraging prospective doctoral students from taking the master's degree or at least are not requiring or encouraging them to do so.

In some universities, the master's degree is granted automatically to students who pass the preliminary examination for the Ph.D., and also to those who fail to pass the preliminary examination but who are nevertheless judged worthy of the master's degree. In others, the master's degree is ordinarily granted only to those who fail in the preliminary examination, and the degree thus becomes a kind of "consolation prize." In these institutions, those who pass the preliminary proceed directly to the doctorate without taking the master's degree at all. In either case, there are no special requirements or formalities for the master's degree. If the degree is granted, it is done merely as a perfunctory gesture or as a consolation prize.

This tendency to eliminate the master's degree as one of the steps to the doctorate is, in my judgment, a serious mistake.[19] It is a practice likely to result not only in further depreciation of the master's degree but ultimately in a deterioration of standards for the doctorate as well.

There are several reasons for this conclusion. First, the procedure by which the master's candidate prepares a thesis and submits to formal comprehensive examinations provides an excellent device for determining his fitness to proceed to the doctorate. A faculty advisor and an examining committee for a master's candidate are in a strong position to handle the difficult problem of eliminating unfit students. They can pass simultaneously on qualifications for the master's degree and fitness for further study toward the Ph.D. At this point the better students can be systematically encouraged and the unqualified weeded out. Second, the requirement of a valid master's degree in economics provides the leverage by which the student may be required to make up deficiencies early in his graduate career. By denying the master's degree until first things have been done, the student is forced to build a secure foundation for his later doctoral studies. Third, the necessity of meeting the requirements for the master's degree provides the student with an immediate and specific goal for his early graduate work. This helps to

[19] Cf., Committee on Professional Training, American Chemical Society, "Philosophy of Graduate Training at the Ph.D. Level," *Chemical and Engineering News*, Jan. 19, 1948. This report states (p. 167) "The master's degree should not be used as 'consolation' to a doctoral candidate who has proved to be unsatisfactory, but should be awarded only on its own merit to students who have demonstrated positive achievement well beyond the bachelor's level."

give focus to his early work and offers strong incentives to accomplishment. Fourth, the writing of a master's thesis is first-rate experience for the younger graduate student. Fifth, the requirement of a sound master's program in the early years would tend to insure a well-rounded education for those who are forced to drop out before completing their course work for the doctorate. Fewer would end up with incomplete or fragmentary programs. Finally, if these same students who were forced to drop out—many of them for reasons unrelated to their competence—were awarded a master's degree, they would be able to go forth with a definite and widely recognized symbol of their achievement.[20]

My conclusion, then, is that the great majority of students in the first year of graduate study should enter a basic, non-specialized program of study in economics and that this program should lead to the award of the master's degree to those completing it successfully. Those who do not see fit to enter such a program—even for the best of reasons—may well be permitted to pursue their studies and may well be granted degrees of some kind but they should emphatically not be awarded the master's degree in economics. That degree should be reinstated as one signifying a substantial accomplishment in economics and a level of professional competence as an economist.

If the objective of revaluating the master's degree is to be achieved, one practice all too common in American universities must be discontinued. This is the practice of granting the master's degree after one year's graduate work—after the accumulation of so many hour's credit—almost regardless of the student's prior achievements or his general "mastery" of the field. As one professor puts it: "Our master's program accepts the student as he emerges from undergraduate school and takes him as far as he can go in one year." The master's degree should be awarded on the basis of standards of achievement, not on the basis of clock hours devoted primarily to repairing deficiencies in the student's background.[21]

[20] Many but not all graduate professors agree with the position that the master's degree ought ordinarily be taken on the way to the Ph.D. When queried on this point 27 out of 59 graduate professors were in favor, 16 thought it depends on the individual student and his needs, 10 thought that the taking of a master's doesn't make much difference, and 6 were opposed. One of my critics who agrees with my general position said, "While, in general, doing the master's degree is a good thing, I find occasional very good students who understand researching, organizing, and writing up materials and who therefore make better use of their time if they do not take the master's." I do not disagree with this but I believe (as does my critic) that there are relatively few such students.

[21] Cf., Committee on Graduate Work, Association of American Universities "The Master's Degree," *Journal of Proceedings and Addresses,* 1945, p. 6. This report states (p. 9): "This degree should represent successful completion of an educational experience one stage beyond the Bachelor's degree both in specialization and in the character of the subject-matter

Having argued for the reinstatement and revaluation of the master's degree in economics, the question remains: What should be the minimal standards by which master's candidates should be judged? In general, the criteria would be similar to those for the doctorate except that standards would represent a generally lower order of ability and achievement.

1. *Personal qualities.*
   (a) In general "intelligence," a master's candidate should rank at least among the top third of all college graduates—as measured by his undergraduate grades or his achievement on appropriate tests.[22]
   (b) He should have the motivation, initiative, and energy for further professional growth, though not necessarily at the rate required of a Ph.D. candidate.
   (c) He should have the emotional stability necessary to function in the kinds of positions economists are called on to fill.
   (d) He should be a person of integrity and good character.
2. *Knowledge.*
   (a) *Common Core.* He should have a knowledge of economic theory equivalent to that which could be obtained in rigorous one-year graduate courses for which undergraduate intermediate theory and money and banking is a prerequisite. His knowledge of theory should include value, distribution, money and employment. He should have a knowledge of statistics such as could be acquired in a solid half-year graduate course for which an elementary undergraduate course is a prerequisite. It is possible that economic history and history of economic thought would not be included in the core for the master's candidate, though of course they would be highly recommended.
   (b) *Special fields in economics.* Each candidate for a master's degree should be prepared in one or two special fields in addition to the common core. If one field is offered, his preparation should be the equivalent of what could be obtained in a

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studied and the manner of presentation. An ideal requirement for the attainment of this degree is the kind of intellectual development and demonstrated performance that could be expected from a student who has had broad and thorough undergraduate preparation for his subsequent work, has manifested scholarly interests by his undergraduate record or otherwise, and has zealously devoted himself for at least one year to work as a graduate student under the active guidance of able scholars and teachers and with the proper use of adequate library and laboratory facilities, all (or at least a great majority) of the courses pursued being at a level which presupposes knowledge of the elements of the subject-matter studied."

[22] Cf., "The Master's Degree," *op. cit.*, p. 13.

one-year graduate course. If two fields are presented, his preparation in each should be equivalent to what could be obtained in a half-year graduate course. In case a student wished to present a field from the common core as a special field, he would be permitted to do this by presenting evidence of mastery beyond that required for all students. All students should write a master's thesis or equivalent in the major field.

(c) *General knowledge of the entire field of economics.* A master's candidate cannot be expected to have the breadth of knowledge required of a candidate for the Ph.D. However, he should have a knowledge of perhaps three fields, in addition to his common core and special fields, equivalent to that which could be obtained by taking any undergraduate "survey" course in the field or reading an elementary textbook.

(d) *Research tools.* The master's candidate should not be required to show proficiency in any research tools (except statistics which is covered under the common core).

(e) *Fields outside economics.* The master's candidate should not be expected to show the breadth of knowledge required of the Ph.D. However, he has presumably completed a liberal education and should be held for a range of knowledge such as a graduate of a liberal arts college, placed in the upper third of his class, could reasonably be expected to have, plus that which an intellectually curious and alert person would have acquired independently. He should be specifically required to repair gross defects in his general intellectual background before he is awarded a master's degree.

3. *Abilities and skills.*

(a) *Reading.* A candidate for the master's degree in economics should be able to read with comprehension any of the easier professional literature in the common core and in his special fields and he should be able to understand its relevance to problems and issues.

(b) *Writing.* He should be able to write correctly and with logical organization, brief or fairly extended discourses on subjects in his special fields.

(c) *Speaking.* He should be able to present an economic subject before a class or small group, and to explain a point in an informal discussion. The requirement in speaking should be thought of jointly with the requirement for writing and high competence in one should substitute for deficiency in the other.

(d) *Teaching*. Under supervision, and with time for preparation, he should be able to teach the first undergraduate course in principles of economics.

(e) *Research*. He should be able to carry on limited research projects under general supervision, or to serve as a useful research assistant under the detailed supervision of a mature research worker. He should be able to use economic theory to a modest degree in analyzing the effects of changes in economic variables and in formulating research hypotheses.

(f) *Writing for publication*. The master's candidate should not be required to be able to produce manuscript that is at a level of quality acceptable for publication. He should, however, be able to write acceptable memoranda and reports. The writing of a thesis should be both preparation to meet this requirement and a test of the student's ability to meet it.

4. *Professional orientation and motivation*.

(a) The candidate for the master's degree should exhibit a serious interest in economics, and a desire to continue his study of the field.

(b) He should have achieved a degree of objectivity and critical facility in matters relating to economics, and a respect for logic and evidence.

5. *Capacity for growth and adaptation*. The candidate for the master's degree should have the motivational pattern and the intellectual equipment necessary for professional growth and for adaptation to new developments in the field. A person who has completed the requirements for the master's degree but shows no ability or inclination to grow or to carry on further work in the field should probably not be awarded the degree.

I believe that these standards are in accord with much of the thinking of graduate professors of economics although they apparently seldom consider standards or educational objectives explicitly in terms of what the student can *do* as distinct from what he *knows*. When a group of graduate professors were queried on their conception of the "knowledge, abilities, and personal qualities" which a master's degree in economics should symbolize, they provided a variety of responses. Many of them emphasized analytical ability, facility in the use of theory, and a grasp of "economic relationships." Some stressed the ability to read economic literature, to write, and to teach. Others thought that knowledge of sources of data, of research techniques, and of practical ability to do research work under supervision are of prime importance. A few mentioned knowledge of current policy issues,

awareness of "intellectual issues," knowledge of economic history and institutions, objectivity, maturity, curiosity, etc.

My discussion of the master's degree in economics has been predicated on the assumption that it should become a significant degree representing substantial achievement and ability; that most graduate students in economics should be candidates for this degree in the early portion of their graduate study; and that among the students who should take the degree are those who are planning to work toward the Ph.D. To adopt the conception of the master's degree here outlined would require a substantial raising of standards and tightening of requirements in many universities. I believe that the result would be a desirable raising of the level of competence in the profession generally even if it should result in a reduction in the number of students receiving degrees.

Experience in the universities which are attempting to maintain standards for the master's degree at about the level suggested here indicates that more than one academic year is usually required for the completion of the master's degree. Apparently, only the most unusual and well-prepared students finish in one academic year. Most students require from a summer session to a year of additional time. Students with assistantships often take 2 full years.[23]

Attitudes Toward Present Standards

To learn something about the extent of satisfaction with present standards for the master's degree and the Ph.D. I asked graduate professors of economics this question:

> What percentage of the students whom you are turning out with master's degrees or Ph.D.'s in economics have, in your opinion, a knowledge of the field of economics and an ability to use this knowledge that is commensurate with your concept of what a master's degree or a doctorate in economics should signify?

The responses were as follows:

	Master's Degree[24]	PhD.[25]
Half or less	13%	20%
More than half; less than three-quarters	10	5
Three-quarters	13	9
More than three quarters; less than 95 percent	39	27
95 percent or more	7	5
No answer	18	34
Total	100	100

[23] Cf., Association of American Universities, "Report of the Committee on Graduate Work," *Journal of Proceedings and Addresses*, 1945, p. 6.

[24] Schedule IV: 61 respondents.

[25] Schedule VII: 59 respondents.

Those who felt that a significant number of degrees are awarded to persons who do not measure up explained the failure in several ways. Some thought it was due to inadequate prior preparation of students, lax admission standards, or inadequate attention to the weeding out of unfit students. Others attributed it to failure on the part of the faculty to define standards and to apply them faithfully once defined. Others said it was a policy to use the master's degree as the device for gently easing out students who are unqualified to proceed to the doctorate. And some thought the trouble lay in the shortcomings of faculties or of facilities for the proper training of students. In general, the blame was usually placed on the faculty in one way or another.

Apparently many of the respondent professors felt that present standards are somewhat ambiguous or in need of careful formulation, since a majority expressed themselves affirmatively on this question:

Do you believe that a useful purpose would be served if the American Economic Association or some other qualified agency were to define minimal standards for the master's degree and the Ph.D. in economics?

The replies to this question were:

	Master's degree[26]	Ph.D.[27]
Yes	51%	32%
Yes, qualified	23	24
Uncertain	8	12
No	13	24
No answer	5	8
	100	100

[26] Schedule IV: 61 respondents.

[27] Schedule VII: 59 respondents.

Chapter 5

RELATIVE QUALITY OF GRADUATE STUDENTS IN ECONOMICS

Economists everywhere are interested in the question of whether the graduate students attracted into the field are of a quality superior or inferior to those who enter other fields of graduate education and other learned professions. Evidence on this subject is difficult to obtain, and such evidence as is available cannot easily be appraised. Fortunately, additional data on this subject are being collected by the Commission on Human Resources and Advanced Training under the direction of Dr. Dael Wolfle. But from this important and ambitious study only certain preliminary results are available as I write.

Evidence from Graduate Record Examinations

The most comprehensive data on the relative quality of graduate students in various fields are provided by the results from the Graduate Record Examinations. These tests, devised to aid in appraising candidates for admission to graduate school, have been given since 1937 to many thousand prospective and enrolled graduate students. The tests were originally developed as a research project of the Carnegie Foundation for the Advancement of Teaching and are now administered by the Educational Testing Service of Princeton, N.J.

In 1947 a comprehensive report was published comparing the scores of graduate students in various fields who had been accepted for admission during the years 1945-47.[1] To avoid biased samples, only those students were included who were in graduate schools requiring the examination of all members of a class. This restricted the data to 41 graduate schools and 5,972 students. Comparative data by major fields were made available for the 24 fields which were represented by 50 or more students.

The tests for which comparative data are available are the profile tests in eight parts: mathematics, physics, chemistry, biology, social studies, literature, fine arts, and verbal factor. The results of the tests are in the form of a set of scores on each of the eight parts. The scores are expressed on the basis of scales in which 500 is the average score of the original standardization group (a highly selected sample of prewar male students in universities of Northeastern United States) and

[1] The Graduate Record Office, *The Performance of Accepted Graduate Students on the Profile Tests, 1945-1947*, New York, 1947.

TABLE 12.—GRADUATE RECORD EXAMINATION PROFILE TESTS: MEAN OF SCALED SCORES BY MAJOR FIELD OF STUDENTS TESTED[a]

Major field of students tested	Subject of tests								
	Mathematics	Physics	Chemistry	Biology	Social studies	Literature	Fine arts	Verbal factor	Number tested
All fields combined	436	449	447	449	382	408	422	403	5,972
Biology	420	455	495	554	343	394	409	405	86
Zoology	441	487	497	591	354	387	432	413	74
Chemistry	524	557	597	510	379	395	418	407	455
Biochemistry	500	534	582	546	353	383	421	402	55
Mathematics	578	516	478	442	383	412	406	421	129
Physics	577	614	527	472	392	393	432	443	159
Engineering	561	568	533	443	357	338	379	364	366
Agriculture	464	500	496	524	322	314	336	339	85
History	381	397	397	411	461	455	453	423	262
Political science	415	428	402	421	461	419	439	423	171
ECONOMICS	441	440	425	422	446	417	428	431	125
Sociology	395	406	412	425	416	420	426	419	116
English literature	394	390	393	421	421	521	472	466	368
Speech and drama	383	404	395	415	373	460	445	396	167
Philosophy	432	441	419	420	451	494	467	500	54
Music	374	391	374	360	342	398	509	371	73
Education	402	411	407	420	351	376	388	361	1,078
Psychology	426	446	436	480	393	421	441	447	268
Business	459	454	417	397	377	357	379	337	116
Home economics	393	404	453	495	321	365	400	339	68
Library science	364	366	381	411	383	466	454	420	129
Social work	361	363	384	425	383	425	432	399	213
Medicine	425	494	500	565	345	375	401	408	82
Nursing	402	426	494	527	352	412	438	422	64

[a] Graduate Record Office, *The Performance of Accepted Graduate Students on the Profile Tests*, 1945–47, New York, December 1947, pp. 16–27.

the standard deviation is 100. Table 12 presents the mean scores for each part of the test for students who were majors in various fields including economics.

These data indicate that the profiles of the scores for students of various fields differ significantly. Those in the natural sciences tend to have higher scores in mathematics and natural science and lower scores in the social studies and humanities; students of the social studies have relatively higher scores in the social studies and the humanities, and lower scores in the natural sciences; etc. Economists apparently tend to have fairly horizontal profiles. Their performance on each part of the test is not far from that for the average of all students except in the social studies portion where it is significantly higher.

Among the 24 student groups included in table 12, the rank of students of economics in the various parts of the test were as follows:

Mathematics	8th
Physics	13th
Chemistry	14th
Biology	16th
Social Studies	4th
Literature	10th
Fine Arts	13th
Verbal factor	5th

From these results one gains the distinct impression that students admitted to graduate study in economics are near the average of students in all other fields. In no field are the scores of economics students markedly lower than those for all students combined.[2] Their scores tend to be relatively low in the natural sciences and relatively high in mathematics, social studies, and verbal factor. The fact that they are relatively high on the verbal factor portion is significant because this possibly measures general "intelligence" more adequately than any other part of the test.

Evidence from Other Tests

The commission on Human Resources and Advanced Training has collected and summarized a mass of data on mean intelligence scores of undergraduate and graduate students by major fields.[3] Some of these data, as summarized by the Commission, are presented in tables 13 and 14. The data are converted to a common scale in which the mean for the general adult population is 100 and the standard deviation is 20.

Five scores are given for each field, one each for the 10th, 25th, 50th, 75th, and 90th percentile. In interpreting these scores, one should visualize that the students in each group are arrayed, with respect to their scores from the lowest to the highest. The scores for the 10th percentile would then be the score of the person at the top of the lowest ten percent, the score for the 25th percentile would be the score of the person at the top of the lowest 25 percent, etc. For a single comparison of the fields, the 50th percentile, or the median, would be most useful, but the other percentile scores would reveal the distribution of scores.

As tables 13 and 14 show, the scores for students of economics are very near those for "all fields combined." According to these data, students of chemistry, other physical sciences, and psychology show

[2] The Graduate Record Examinations are strongly weighted toward the natural sciences in that three parts are devoted to physics, chemistry and biology; whereas, only one part is devoted to the social studies. This tends to make the profiles appear more favorable to the students of natural science—especially physicists and chemists—than to the social science students.

[3] See: Dael Wolfle and Toby Oxtoby, "Distribution of Ability of Students Specializing in Different Fields," *Science*, Sept. 26, 1952, pp. 1-4.

TABLE 13.—DISTRIBUTION OF APTITUDE TEST SCORES OF RECENT RECIPIENTS OF BACHELOR'S DEGREES FROM 40 COLLEGES AND UNIVERSITIES, BY MAJOR FIELDS[a]

Major field	Percentile scores				
	10th	25th	50th (median)	75th	90th
All fields combined	112	119	126	133	140
Chemistry	116	123	130	137	145
Other physical sciences	116	123	132	138	149
Earth sciences	114	120	126	134	139
Biological sciences	112	119	126	133	140
Psychology	113	119	128	135	142
ECONOMICS	114	120	127	134	142
History	110	118	125	132	139
Other social sciences	108	115	123	131	137
English	114	121	128	136	143
Foreign Languages	114	121	128	135	142
Philosophy and other humanities	109	118	123	133	139
Fine Arts	112	119	126	132	140
Engineering	115	122	129	137	145
Agriculture	114	119	124	130	137
Home economics	100	110	118	124	130
Nursing	113	119	125	134	143
BUSINESS	111	117	124	131	137
Education	107	116	123	131	136
Physical education	99	110	117	124	134

[a] Wolfle and Oxtoby, *op. cit.*, p. 2. The sample includes about 10,000 students.

relatively high scores; and students of physical education and home economics rank relatively low. It is noteworthy, also, that students of business stand several points below students of economics.

Still further information on the relative test scores of graduate students in economics, as compared with those of other fields, is derived from results of tests administered in 1950-51 in a leading university to students entering graduate study. These results are confidential and cannot be published except in summary form. On a scale in which the average of all graduate students at that university was 500, the mean scores for 28 economics students on the several tests given in 1950 were 482, 507, 445, 465, and 494; and the scores for 29 students on tests given in 1951 were 483, 482, 481 and 490. On the tests given in 1950 economics students as a group, out of 24 fields, ranked

TABLE 14.—DISTRIBUTION OF APTITUDE TEST SCORES OF GRADUATE STUDENTS RECENTLY ENROLLED IN 42 UNIVERSITIES, BY MAJOR FIELDS[a]

Major field	Percentile scores				
	10th	25th	50th (median)	75th	90th
All fields combined	114	121	129	137	144
Chemistry	118	126	134	142	148
Other physical sciences	122	129	136	143	148
Earth sciences	114	121	129	137	144
Biological sciences	117	123	131	138	145
Psychology	123	130	137	143	149
ECONOMICS	114	121	130	138	145
History	114	121	129	136	144
Other social sciences	114	121	129	138	145
English	120	126	134	141	147
Foreign languages	115	123	131	140	148
Philosophy and other humanities	117	126	135	142	148
Fine arts	112	119	126	135	143
Engineering	118	123	131	139	145
Agriculture	121	127	132	138	144
Home economics	110	116	121	127	130
Medicine	119	125	132	138	145
Dentistry	112	118	126	134	142
Other health fields	116	123	131	138	145
BUSINESS	112	119	126	133	140
Education	113	119	127	134	139
Physical education	108	115	120	125	129
Law	117	120	129	133	140
Social work	112	119	126	132	138

[a] Wolfle and Oxtoby, *op. cit.*, p. 2. The sample includes about 4,500 students.

from 12th to 19th on the various tests. On the tests given in 1951, with 17 fields reported, the economics group ranked from 9th to 15th. At this university, graduate students in economics are evidently below the average of all graduate students.

Dr. Elbridge Sibley, in his study *The Recruitment Selection and Training of Social Scientists,*[4] compiled data on the relative standing in their classes, as measured by grades, of undergraduate students majoring in various disciplines at five colleges. He classified the stu-

[4] Social Science Research Council, Bulletin 58, New York, 1948, pp. 23-28.

TABLE 15.—SCHOLASTIC RANKING OF UNDERGRADUATE STUDENTS IN FIVE COLLEGES, BY MAJOR FIELDS[a]

Field	Percent outstanding	Percent superior	Percent mediocre and inferior	Total	Number of students
All fields	7%	27%	66%	100%	1,989
Divisions					
Social science[b]	7	25	68	100	763
Mathematics and natural science	10	37	53	100	388
Humanities[c]	8	26	66	100	476
All other fields	6	19	75	100	362
Selected Departments[d]					
Economics	6	24	70	100	240
Government	3	29	68	100	104
History	9	26	65	100	116
Psychology	7	25	68	100	59
Sociology	5	16	79	100	57
Mathematics and physics	19	32	49	100	78
Biology	5	37	58	100	175
Chemistry	11	43	46	100	54
Languages and literature	9	25	66	100	305
Business administration	2	15	83	100	60
Engineering	8	13	79	100	78

[a] Sibley, *op. cit.*, p. 24. Data for students at Amherst, Brown, Harvard, Oberlin, and Chicago.
[b] Includes anthropology, economics, geography, government, history, psychology, and sociology.
[c] Includes foreign languages.
[d] Includes only departments reporting more than 50 students.

dents into three groups: (1) "outstanding," those in the top 7½ percent of students; (2) "superior," those in the next 26½ percent of students; and (3) "mediocre and inferior," all others. The percentage distributions of students in each of several disciplines are shown in table 15. The percentage of outstanding and superior students in the natural sciences and humanities exceeded that in the social sciences. In economics, the percentage of outsanding and superior students was slightly less than that for the social sciences in general and for all fields. The percentage of outstanding and superior students was conspicuously less for business administration than for economics. As Dr. Sibley was careful to point out, grades are not an infallible measure of the relative quality of students, especially when comparisons among students in different disciplines are being made. However, he obtained consistent results with a group of students in the two-year college of

the university of Chicago, all of whom took substantially identical work in college but later majored in different fields.[5]

In connection with the Graduate Record Examination, data have been compiled on the mean scores earned by college seniors on tests of general education.[6] Out of 31 major fields, the students of economics ranked, in the various parts of the examination, as follows:

General Mathematics	9th
Physical Science	13th
Biological Science	21st
Social Studies	3rd
Literature	17th
Arts	22nd
Effectiveness of Expression	16th
Vocabulary	16th
General Index	17th

From the results of examinations for Junior Professional Assistants, the U. S. Civil Service Commission has compiled the comparative scores of those designating economics as their option and those designating other fields. The median scores for the group taking the examination in December 1951 were as follows:[7]

	Verbal ability test	Quantitative ability test	Abstract reasoning test
economists	40	21	35
bacteriologists	38	19	35
geographers	38	20	34
geophysicists	41	26	39
social science analysts	42	20	35
statisticians	41	23	38

On a similar examination given in 1941, data on the percentage of persons passing the general test were as follows:

economists	84%
administrative technicians	87
chemists	80
geologists	80
meteorologists	84

Relative Ability of All Graduate Students

In comparing graduate students of economics with those of other fields, it must be remembered that graduate students as a whole are a

[5] Sibley, *op. cit.*, p. 26-27.

[6] These data are available in mimeographed form from the Educational Testing Service, Princeton, N.J.

[7] These data were kindly supplied by Mrs. F. W. Luikart, Chief of the Examining and Placement Division.

highly selected group. To say that economics students are near the average of all graduate students, is not to say that they are second-rate; the total population of graduate students with whom they are being compared is composed of a highly-gifted group. Dr. Wolfle and Dr. Oxtoby have shown,[8] that only about 10 percent of the total population of this country earns test scores higher than the average for all college graduates, only about 7 percent of the total population earns scores higher than the average for all graduate students; and only about 2 percent earn scores higher than the average of Ph.D.'s in the natural sciences.[9]

To show the relative order of ability of all graduate students, Dr. Sibley compiled data on the graduates of the five colleges included in his study, by occupation or field of graduate study. As shown in table 16 the college graduates who attend graduate schools of arts and sciences include a high percentage of outstanding and superior students as compared with those who do not enter graduate study of any kind, and also as compared with those who enter the study of business administration, law, and medicine.

A related study of graduates of the High School of the University of Minnesota who have taken advanced degrees confirms Dr. Sibley's results. The mean intelligence quotients of this group, by type of advanced degree, are as follows:[10]

D.D.S.	112
M.D.	123
LL.B.	127
Master's	127
Ph.D.	132

The fact that graduate students rank about as high as medical students (in some studies higher) is of special interest because of the extreme care with which the latter are reputedly selected. Available evidence indicates that in terms of college grades and scores on tests, medical students are not necessarily more gifted, as a group, than students in graduate schools or arts and sciences. See tables 12, 14, and 16.

Concluding Comments

Certain very general and tentative conclusions can be drawn from available data on the quality of students who enter graduate work in

[8] *Op. cit.*, p. 1. Cf., data on distribution of Army General Classification Scores by highest year of school completed, President's Commission on Higher Education, *Higher Education for American Democracy*, Washington, 1947, Vol. 6, p. 11.

[9] Comparable data not available on the social sciences.

[10] Royal B. Embree, *A Study of the Graduates of the University High School from 1921 to 1945 with Special Reference to Their Subsequent Academic Careers*, Ph.D. Dissertation, University of Minnesota, 1947, p. 495, 516.

TABLE 16.—SCHOLASTIC RANKING AS UNDERGRADUATES OF GRADUATES OF FIVE COLLEGES, BY OCCUPATION OR FIELD OF GRADUATE STUDY[a]

Occupation or field of graduate study	Percent outstanding	Percent superior	Percent mediocre and inferior	Total	Number of students
Total	7%	27%	66%	100%	1,989
No graduate study reported	3	23	74	100	1,091
Attending graduate schools of arts and sciences	20	37	43	100	331
Social sciences[b]	23	29	48	100	117
Mathematics and natural sciences	21	52	27	100	122
Humanities[c]	14	27	59	100	92
Attending vocational or professional schools	8	29	63	100	567
Business administration	4	26	70	100	94
Law	8	38	54	100	158
Medicine	7	34	59	100	119
Other schools	10	19	71	100	196

[a] Sibley, *op. cit.*, p. 32. Data for graduates of Amherst, Brown, Harvard, Oberlin, and Chicago.
[b] Includes anthropology, economics, geography, government, history, psychology, and sociology.
[c] Includes foreign languages.

economics. First, graduate students in economics are apparently well-rounded; i.e., they have relatively equal abilities on the various portions of tests. They are apparently neither outstandingly deficient nor proficient in any field of learning. This is revealed by the horizontal form of the profiles of economics students as compared with those in other fields (see table 12). Second, economics graduate students tend to be near the average for all graduate students (see tables 12, 14, and 15).

Of interest because of the close relation of economics to the field of business, is that students of business administration apparently make somewhat poorer showings on the various scores than students of economics (see tables 12, 13, 14, 15, and 16).

Any conclusions drawn from the data presented must be interpreted with caution. First, the samples from which the data are drawn are limited. Second, it is possible that some of the tests may be designed in such a way that students with particular talents or training will be able to make better scores than others. Differences in the scores might then not reflect differences in basic ability or intelligence. Third,

the ability to make high scores on intelligence tests or high grades is not the only criterion of the quality of students. Indeed, studies of the relation between test scores or undergraduate grades and "success" in graduate schools seldom yield correlation coefficients above 60 or 70. While this is considered high for this type of correlation, yet it suggests the presence of important factors in graduate school success other than ability to make high scores on tests or a good undergraduate record. Fourth, the attractiveness of various fields to bright students may change according to the times. It is possible, though I have no evidence, that economics had greater attractiveness to good students in the 1930's than it has today; and that today the physical sciences may be relatively more attractive as a result of enormous publicity.

It is easy to find arguments for questioning or ignoring test scores and undergraduate grades as a measure of the relative quality of students in various fields. Yet, the general consistency of the data from several sources indicates that these results cannot be lightly dismissed.

Members of the economic profession can take some satisfaction from the fact that the new recruits into the profession are in ability near the average for all graduate students. This is near the average of a very select company. They can also be pleased that there are many new recruits who are far above average. However, they should not become complacent on the basis of the average or near-average ability of the new recriuts.

The average for all students includes fields such as fine arts, music, physical education, education, dentistry, home economics, and social work—fields which do not ordinarily draw the cream of graduate students or which do not require high proficiency in academic subjects. Among the more traditional academic fields, economics is well below average.

The profession would do well to proceed on the assumption that the average ability of students attracted into economics is lower than it should be in relation to the intellectual demands of the field and its importance in our national life.

Chapter 6

RECRUITMENT AND SELECTION

The usual avenue by which young men and women enter the profession of economics is graduate study. The procedures in the recruitment and selection of persons who are to study economics at the graduate level is, therefore, a major factor determining the quality of future personnel in the field. I believe that the profession is not fully meeting its responsibilities in recruitment, and selection.

Evidence from professors and from employers of economists indicates that for many years there has been a ready market at prevailing salaries for persons with graduate work in economics. But there is no critical shortage of economists in the same sense that there is said to be a shortage of engineers or physicists. Current quantitative demands for economists hardly justify an intensive campaign to recruit people into the field, and do not warrant sacrifices of quality in the interests of quantity.

The evidence of the preceding chapter suggests that the profession might wish to recruit more students of high quality and to reject some of the less capable ones now being admitted.[1] This raises the interesting question of how students now find their way into economics.

Decisions to Enter Graduate Study in Economics

As shown in table 17 the present and former graduate students responding to my questionnaires first decided to major in economics at widely varying times. Less than 10 percent had decided before entering college, about 40 percent had decided by the end of the second year of college, and only about three-fourths had decided by the end of their college careers. The time of decision to undertake *graduate* study in economics was still later. Only about a third had made up their minds prior to the fourth year of college, and only a little more than

[1] Apparently many graduate professors agree with this position. Most departments report that they are trying, through scholarships, personal advice, and assisting students to get scholarships elsewhere, to encourage good students to enter graduate work in economics. And most of them feel that greater efforts should be made to stimulate the flow of *good* students into the field. Many of them emphasize that it is more *good* students—not just more students—that is wanted. On the question of supply of personnel into economics, one of my critics writes: "One of our problems is to learn to use lesser talent more successfully than we do. I have the feeling the laboratory sciences do a better job of this than does economics. I believe, in any case, that we should treat talent as a scarce resource to be used as all other resources and we should try to meet the lack largely by having our society provide more in general rather than by pulling it from other fields."

TABLE 17.—TIME OF DECIDING TO MAJOR IN ECONOMICS AND DECIDING TO UNDERTAKE GRADUATE STUDY, GRADUATE STUDENTS AND FORMER GRADUATE STUDENTS[a]

	Decision to major in economics	Decision to undertake graduate study[b]
Before entering college	10%	12%
During first two years of college	32	9
During third year	21	13
During fourth year	11	35
After graduation but before entering graduate study	12	
After some graduate study in another field	11	
After being out of college:		
less than 1 year		9
1–2 years		7
3–5 years		8
more than 5 years		5
No answer	3	2
Total	100	100

[a] Schedules IX and X: 358 respondents.

[b] Cf., Elbridge Sibley, *The Recruitment, Selection, and Training of Social Scientists*, Social Science Research Council, Bulletin 58, New York, 1948, pp. 19-20. Sibley's data indicate that the decision to enter graduate study is made somewhat earlier by natural science students than by social science students.

two-thirds by the end of their college work. The remainder decided after graduation from college.

Tables 18 and 19 show the influences leading to those decisions as reported retrospectively by the individuals themselves. Most of them

TABLE 18.—INFLUENCES LEADING TO CHOICE OF ECONOMICS AS A MAJOR, GRADUATE STUDENTS AND FORMER GRADUATE STUDENTS[a]

	Percent reporting
Developed interest through high school social studies	1%
Developed interest from prior experience in government, business, or labor unions	6
Interested in economics	37
Interested in public affairs or social welfare	24
Advice or influence of relatives	5
Advice or influence of professors	13
Attractive professional or business opportunities	21
Other	10
No answer	4

[a] Schedules IX and X: 358 respondents. Percentages add to more than 100 because some respondents mentioned more than one influence. Cf. Horace Taylor (editor), "The Teaching of Undergraduate Economics," *American Economic Review* (supplement), Dec. 1950, p. 143.

say they chose economics as a major (Table 18) because they became interested in the field, presumably from experiences prior to college or from courses taken in college. The advice of relatives and professors and the desire for careers in the field were apparently secondary influences. It is notable that the number mentioning direct influence of professors was few as compared with the number mentioning interest in the subject.

Among the influences underlying the decision to enter graduate study (Table 19), interest in the subject is important, but more than half mentioned the desire to seek a career in teaching or other professional work as a primary motive.

Recommendations on Recruitment

Since the decisions to take up economics as a major field of study and to enter graduate school are ordinarily made—and should be made

TABLE 19.—INFLUENCES LEADING TO DECISION TO UNDERTAKE GRADUATE STUDY, GRADUATE STUDENTS AND FORMER GRADUATE STUDENTS[a]

	Percent reporting
Interest in economics; intellectual curiosity	33%
Advice or influence of relatives	7
Advice or influence of professors	8
Availability of scholarships or other financial aid	13
Desire for career as teacher	31
Desire for career in economics, teaching not mentioned	24
Other	11
No answer	5

[a] Schedules IX and X: 358 respondents. Percentages add to more than 100 because some respondents mentioned more than one influence.

—during the student's undergraduate years, the practical things that can be done to attract a larger number of capable students into the field are things that must be done in the undergraduate colleges.

The first of these, of course, is to interest more *good* students in majoring in economics. This is largely a matter of the quality of teaching and of text materials in the first courses. In institutions where the teaching of principles of economics is regarded as a hack job to be done by assistants, the prospect of kindling real interest is, of course, very slight. But this opens up a big question that exceeds the bounds of the present study.

A second, and much simpler suggestion, is to help undergraduate students to realize that there *is* a profession of economics, that it offers wide and varied opportunities, and that it is by no means a strictly

academic field like classical languages or medieval history. Young people often have direct acquaintance with law, medicine, dentistry, business, agriculture, engineering, and education. Fields like chemistry and physics are well known to them by reputation if not by actual contact. But they are unlikely to have known an economist or to have had the vaguest notion of what he does or of what opportunities are open to him. It would seem useful, then, for departments of economics to provide systematically some professional orientation for their undergraduate students.[2]

In my discussions with teachers of economics, I have found that many are themselves lacking in an understanding of the professional opportunities available to economists. Several have asked me: "What do you tell a student when he inquires about vocational possibilities in economics?" The answer is to be found, for example, in the admirable statement prepared by a Committee of the American Economic Association,[3] or perhaps in the first chapter of this study. It is obvious that economics is a growing and expanding field and that there are many socially useful, interesting, and reasonably remunerative careers for persons trained as economists. These facts should be brought to the attention of students—even in the first course. To do so would be not solely an act of proselyting but a proper educational task. It may be as important for students to know what an economist is and what he does in our society as to know about Gresham's Law or the kinked demand curve.[4] It is particularly important to acquaint students with these matters early, because the sooner the decision to become an economist is made, the more adequate can be the preparation for graduate study.[5]

Third, special attention should be given to counselling with superior students who have elected economics as an *undergraduate* major. This is not to suggest that all such students should be urged to undertake graduate study,[6] but only that the opportunities in professional

[2] Some departments do try to acquaint students with the possibilities of and the requirements for graduate work in economics, but I have the impression that much of this is very casual.

[3] "The Profession of Economist," *American Economic Review* (supplement), Jan. 1949, pp. 341-43.

[4] Sibley (*op. cit.*, p. 22) points out that the social sciences, unlike the natural sciences, give the undergraduate student no notion of what scholarly work in the field is like. Therefore, students have little chance of learning about the professional possibilities in the field and teachers have little opportunity to identify the students who ought to be encouraged to go on.

[5] Cf. Commission on Human Resources and Advanced Training, *Plans for Studies of America's Trained Talent*, Washington, 1951, p. 11.

[6] Cf. Horace Taylor (editor), "The Teaching of Undergraduate Economics," *American Economic Review* (supplement), Dec. 1950, pp. 139, 151.

economics should be pointed out to them as one promising option. Seminars for superior undergraduate students may be useful in acquainting them with what economists do.

Fourth, graduate departments of economics should have more scholarships for first-year graduate students to be used to attract the most promising students. In many institutions a large part of student aid is in the form of assistantships to second-year and third-year graduate students. It is desirable, of course, to give financial aid in the later years, but for recruitment of outstanding students, it is crucial to give such aid in the first year. If the student is not able to begin graduate work, he can never complete it. Moreover, in administering aid to graduate students, departments should take care that brilliant first-year students are not denied well-deserved aid while funds are used to support indifferent graduate students who have earned only seniority.

Fifth, graduate departments might well maintain close liaison with smaller liberal arts colleges and municipal colleges with a view to discovering and encouraging the more gifted economics majors who might undertake graduate work. This is being done systematically by the graduate colleges of several southern universities under grants from the General Education Board. With declining graduate enrollments, rivalry for *known* students of high ability has become unusually keen. But this is competition for students who have already decided to undertake graduate study and have made application for scholarships. Few universities have attempted to discover *unknown* talent. That is what I am suggesting. It should be worth at least as much time, trouble, and money for an economics department to discover a gifted economist as for a football coach to find a star halfback.[7]

Interesting and promising new schemes for the recruitment of graduate students in the social studies are the Woodrow Wilson Fellowships sponsored by the Association of Graduate Schools of the American Association of Universities, and the Undergraduate Research Stipends of the Social Science Research Council. The theory underlying both of these programs is to seek out superior young people and to encourage them to enter graduate work.

[7] See T. R. McConnell and L. A. Lovegren, *A Study of Assistants at the University of Minnesota* (mimeographed), Minneapolis, 1937. This study reported the tendency of departments at the University of Minnesota to grant financial aid to students who have done previous work at that institution, and (p. 11) to the "general lack of aggressiveness in recruiting promising graduate material." The study reported that ten of thirty-three department heads interviewed made an active search beyond the institution for outstanding assistantship applicants.

Admission

After recruitment, perhaps the most important factor determining the quality of professional personnel in economics is admission to graduate study.

The most general requirement for admission to graduate study in economics is a bachelor's degree, though a few universities permit some seniors to enroll in graduate courses prior to the completion of undergraduate requirements. Most graduate departments of economics also require a minimal grade average in undergraduate work. These grade requirement in 84 departments for which data are available are as follows:

Honors	4
B plus	4
B	33
B minus or C plus	15
Upper half of graduating class	4
C	3
No requirement	7
Other	2
No information	12
	84

Practice varies considerably regarding the specific substantive content required of applicants. Out of 84 departments for which data were obtained, 39 require that the applicant have completed an undergraduate major in economics (usually as the major is defined at the institution of application), 31 require "substantial background in economics or social science," 30 require a course in statistics, and 6 have no substantive requirements in economics. In the "tool" subjects, 13 departments require accounting, 8 require mathematics, and 8 require one foreign language. A few institutions require courses in fields other than economics or "tool" subjects related to economics; among these requirements are political science, sociology, history, commerce, finance, and laboratory science.

All except one of the institutions reporting indicated that there are provisions for students to repair deficiencies in their backgrounds while enrolled as graduate students. The provisions include enrollment in undergraduate courses without credit (19 out of 67 reporting institutions), requirement of additional courses (42), passing special examinations (3), and enrollment as a special student (2).

Entrance examinations as a condition of admission are given by only a few institution—8 out of 54 reporting. Among the examinations given are the Miller Analogies Test, certain of the Graduate Record Examinations, the G.E.D. social studies test, and a reading and com-

prehension test. In only 5 institutions, however, were the scores on these tests used as an important basis for deciding whether or not to admit individual students. Interviews are used when practicable in 31 out of 55 institutions reporting, and letters of recommendation by 30 institutions.

Personal and physical qualities of applicants are ordinarily considered by 10 of 53 institutions and sometimes considered by 5 more. The remaining 40 reported that they gave little or no attention to these qualities in connection with admissions.

About two-thirds of the reporting institutions (35 out of 51) indicated that their admission requirements are administered "strictly and virtually without exception." The remaining third reported that exceptions are made for borderline cases or for students who show unusual promise.

A special admissions problem exists for students who have completed some graduate work and who wish to go beyond the first year in quest of a doctorate. When the first year of work has been taken at the same institution, the problem is one of deciding whether the student should be permitted to go ahead. Out of 34 reporting institutions, 15 indicated that a student who has completed one year of work and has met formal requirements for good standing is automatically permitted to continue. Nineteen institutions stated that there was a screening process at this point—either in connection with the award of the master's degree or otherwise—and that only those students who were judged of doctoral caliber were permitted to go ahead. The problem is also present in the cases of those students who have completed some graduate work and wish to transfer to another institution for study toward the doctorate. Here practice varies enormously and it is difficult to generalize beyond the statement that grades and letters of recommendation are the principal basis of decision in each case. Personal and physical qualifications are considered more frequently in the case of applicants who propose to study for the doctorate than in the case of applicants who are seeking admission to the first year of graduate study.

Opinions Regarding Admission Practices

Apparently there is mild dissatisfaction among graduate professors of economics regarding admissions practices. As shown in table 20, only a minority judged that present procedures and standards are good, most considered them fair, and a sizeable minority thought them poor. On the whole they thought that admissions practices were more efficient in selecting students with adequate intellectual capacity and preparation in economics than in selecting those with adequate preparation in

"tool" subjects or with suitable personal and emotional qualities. Several of them commented, however, that they questioned whether it was a proper function of admissions policy to consider personal and emotional qualities of students. Some made the observation that the personally unsuited eliminate themselves soon after admission.

The respondent professors offered numerous suggestions for improvement in present admissions practices. Many thought that the basic problem is the small number of candidates from which to choose, and that the solution lies in attracting more applicants. Others felt that there is need for obtaining more reliable information on the candidates. They felt that less reliance should be placed on letters of recommendation or that ways should be found to make these letters more revealing. Others recommended that fuller and more accurate information on applicants should be obtained including better means of evaluating student records from smaller colleges. Several thought that personal interviews with students prior to admission should be used more

TABLE 20.—OPINIONS OF GRADUATE PROFESSORS REGARDING PRESENT PRACTICES IN THE ADMISSION OF GRADUATE STUDENTS[a]

Efficiency in selecting students who are adequate with respect to:	Good	Fair	Poor	Uncertain	No answer	Total
Intellectual capacity	27%	50%	17%	3%	3%	100%
Earlier preparation in economics	35	38	14	3	10	100
Earlier preparation in tool subjects	14	31	37	7	11	100
Personal and emotional qualities	19	32	20	20	9	100

[a] Schedules IV and VII: 120 respondents.

extensively. Some recommended that several samples of the applicant's written work should be evaluated. Others said that entrance examinations would be helpful. Many expressed the view that steps should be taken to improve the preparation of students prior to admissions—especially in the tool subjects. They suggested greater publicity regarding the content of desirable preparation for graduate study in economics, the requirement of certain courses in economics and certain proficiencies in the "tool" subjects, entrance examinations, and strict requirements regarding the repair of deficiencies after admission. Many merely suggested stricter standards for admission or more rigorous administration of present stardards. A few pointed out the need for more "ruthless" or "impersonal" attitudes toward applicants.

Admission Policy

On the question of selecting students for admission to graduate work, there are two distinct views. The first is that entrance requirements should be rigid, and selection careful, so that few students will be admitted who will be unable to qualify for the degree normally terminating their course of study. In those institutions which restrict themselves largely to a Ph.D. program, this would mean selecting only those first-year students who may be reasonably expected in due time to qualify for a Ph.D. Similarly, in institutions offering the master's degree, this would mean selecting only those students who are judged capable of proceeding to the master's degree. This view is based on the theory that facilities are limited, and that time and money should be reserved for those students who are able to profit fully from graduate study. As one professor expressed this viewpoint, "Every failure of a student is an indication of a mistaken admission." The second view is that admission standards should be relatively low, but that unqualified students should be weeded out early in the program. This view is based on the theory that it is not possible with present techniques to differentiate sharply between qualified and unqualified students except through actual experience in graduate work, and therefore that a highly restrictive admission policy will deny opportunity to many worthy students. In public institutions, moreover, it is felt that a sharply restrictive policy is likely to have adverse affects on public relations.[8] A third possibility, of course, is to achieve a compromise between these two views by having admission standards that are moderately rigorous. No doubt most actual admission standards lie somewhere between the two extremes.

My own view of the matter is that a middle position is desirable for most institutions. I do not have sufficient faith in available devices for screening candidates to be ready to advocate highly restrictive standards designed to admit no one who would later have to be dropped. The available devices consist of undergraduate grades, tests, interviews, and letters of recommendation. Studies of the prediction of success in graduate school based upon undergraduate grades and tests usually produce coefficients of multiple correlation no better than .60 to .75.[9] Such coefficients may be impressive, considering the nature of the problem and of the data. Yet to rely heavily on undergraduate grades

[8] Apparently graduate professors are about evenly divided on this subject. In response to my questions, 26 of 61 respondents favored a rigorously selective admissions policy, 25 favored a relatively lenient admissions policy with high mortality after admissions, and 10 offered no opinion.

[9] See, for example, G. V. Lannholm and W. B. Schrader, *Predicting Graduate School Success*, Educational Testing Service, Princeton, 1951.

and tests may easily do a great disservice to some of the students who are rejected. Interviews are seldom practicable, and letters of recommendation are notoriously unreliable. Thus, there is apparently no consistently reliable method of screening candidates in advance of admission.

On the other hand, it seems to me foolish to admit students whose academic record, test scores and letters indicate that their chances are negligible of ever being able to qualify for a degree.

The question is where should the line be drawn? The line will, of course, have to be drawn differently at different institutions. Those universities whose prestige or location give them drawing power will be forced to restrict themselves to the number of students they can adequately handle. The only sensible course for them is to try hard to choose the best students from among those who apply. Institutions of lesser drawing power may well offer the opportunity for graduate study to a wide range of students including some of those who may have been rejected by the more restrictive institutions. I believe that a case can be made, in the many institutions which have less than optimal enrollments, for admitting students whose chances of earning indicated degrees are judged to be at least one in two or three. Under this standard, some students who might squeak through to a degree would be rejected, but rarely would a really good student be passed by.

Apparently most institutions are not so crowded with graduate students in economics that this proposal would be impracticable. Only a handful of institutions (approximately 6) actually impose limitations on their enrollments or admissions of graduate students in economics, although a few more would apply such limitations if their enrollment ever reached a specified maximum. And only a small minority of professors (16 out of 120) reported that (in their opinion) there are too many graduate students in their institutions. A much larger number (51 out of 120) thought they had too few students for most effective work. Many felt that with the small numbers now in residence, there was too little competition, too small classes, too little inter-stimulation among students, and too little probability of drawing even a few good students.

The relatively lenient admissions policy I have suggested for all but a few institutions (this is not far from the policy now in effect at many of them) can be defended only if two important conditions are met. First, the weaker students who are admitted must be counselled in advance regarding the odds they are facing so that they will not be misled by the act of admission into false hopes and wasted time.[10] Second, the procedures for eliminating students who, after admission, are found to be unfit must be prompt and efficient.

[10] This can be done only if dependable information is available in advance of admissions.

A lenient admission policy, when these conditions are not met, can only result in sub-standard graduate education. If students of questionable ability are admitted without being warned of the odds they are facing, great courage will be required on the part of faculty members—more than most of them have—to drop such students after their inadequacy has been demonstrated. It is all too easy to let them stay until vested interests are so great that dropping them becomes an injustice. This tendency to retain poor students is strengthened by the desire, in many institutions, to maintain large graduate enrollments, and by the willingness to dispose of poor graduate students simply by granting them the master's degree—a degree which (mistakenly I think) is held in low esteem.

Another danger of a lenient admission policy, when not accompanied by rigorous screening after admission, is that standards will be adversely affected. The presence of students of low quality is a subtle influence toward lowering the standards of a department. The faculty conception of a "good student," an "average student," or a "poor student" is determined partly by the abilities of the students they see and know. The process of judging students consists partly of comparing one student with another, not merely of judging each student by some abstract standard. Therefore, in a department having a large number of students of low quality over a period of years, standards are likely to become lower than in departments which have rigorous policies of selection operating either before or soon after admission.

For all these reasons, my conclusion favoring relatively lenient admission policies in departments which have not exceeded their optimum graduate enrollment is valid only on the assumption that rigorous selection will occur soon after admission. The issue is not whether there should be selection, but only when it should occur and how it should be accomplished.

Substantive Preparation

The discussion of admissions, up to this point, has been concerned primarily with the general intellectual quality of students. Another issue concerns the prior substantive preparation of students who are to be admitted to graduate study. What kind of undergraduate background or prior preparation is desirable or indispensable?

There are two extreme opinions on this issue: One that the background of the undergraduate student is a matter of complete indifference so long as he has had a good liberal education; the other that specific background is important and that the student should not be admitted unless he meets certain definite substantive requirements. The second of the opinions is usually qualified by the assumption that a

student who lacks some of the requirements may be admitted to graduate study on the condition that he make up all deficiencies, *in addition* to meeting the normal requirements for his degree. Much opinion lies between these two extremes.

On one point everyone is agreed, namely, that prior preparation is decidedly less important than the basic intellectual qualities of students. Everyone would prefer brilliant applicants with little or no preparation in economics or related fields to dull ones with the most meticulously appropriate backgrounds. But this does not dispose of the question. With students of given abilities, it is surely better to have them appropriately prepared than not. That prior preparation is no trivial matter is indicated by the responses of present and former graduate students. Of 358 respondents, 229 (64 percent) reported that they had been handicapped in their graduate work by inadequacies in their earlier training.

Those so reporting indicated that the following deficiencies constituted handicaps:[11]

Mathematics	41%
Economic theory	21
Statistics	7
Economics generally	25
Social sciences other than economics	12
Foreign languages	8
Literary ability	6
Lack of breadth	5
Faulty undergraduate training generally	14
Other	8

Similarly, few of the graduate professors queried indicated that they regarded substantive admissions requirements as unimportant. Most thought that a major in economics or at least several courses in economics were essential. Many specifically mentioned statistics and economic theory and a few suggested other specific courses. Regarding prior preparation in the "tool" subjects, few favored no requirement, but there was a wide variety of specific suggestions including (in order of frequency): mathematics, accounting, English composition, and logic and scientific method.

I discussed the issue of substantive background with many deans of graduate schools and professors in fields outside economics—in order to learn about the thinking and practices on this issue in other areas. I have found that in other fields—particularly in some of the natural sciences, the undergraduate major is relatively standardized throughout the country. It can be assumed that any person with a major in the

[11] Schedules IX and X: 358 respondents. The total adds to more than 100 percent because some respondents reported more than one deficiency.

field will have had a certain minimal sequence of courses and that the content of these courses will be similar wherever they are taught. In these fields, graduate work customarily presupposes a given undergraduate preparation and builds upon it. Undergraduate economics, on the other hand, is much less conventionalized. Majors in various institutions or even in the same institution may have had widely varied training. There is no generally accepted sequence of courses and no agreed upon content for given courses. This, combined with the fact that more than a third of all economics graduate students have not majored in economics in their undergraduate work,[12] means that those who knock at the door of graduate departments of economics bring with them the most widely varied backgrounds. There is a tendency, therefore, to assume that students start their graduate careers with little usable knowledge of economics and with little common experience in other fields. The training of an economist from first principles to the doctorate, then, occurs largely in the graduate years.

In my judgment, firm but gradual action should be taken to stiffen the substantive admission requirements. In the near future this could be done by a more rigorous policy of requiring students to make up deficiencies after admission to graduate school and by more rigorous standards for the master's degree. In the longer run, I am inclined to think that the profession should work toward the formulation of certain minimal standards for the content of the undergraduate major, and toward the requirement of the equivalent of this major for admission to graduate study of economics. There is no legitimate excuse for the wide diversity of preparation which now characterizes the graduate student bodies in most departments of economics.

While it is clear that not all of this diversity of background can or should be eliminated, certain minimal preparation might be insisted upon. The content of this minimum would be determined by deciding what things in the education of an economist can best be done prior to his admission to graduate school or what things after. In view of the long periods required by students to complete their doctorates in economics (on the average), a case can be made for getting as many things as possible out of the way before the graduate period.

In my judgment, an applicant should be prepared at the undergraduate level in principles of economics, elementary statistics, money and banking, intermediate economic theory, and in one or two other

[12] Among 358 present and former graduate students replying to my questionnaires, 216 (60 percent) majored as undergraduates in economics, another 41 (11 percent) in business, 37 (10 percent) in various social sciences outside economics, and the remainder in fields ranging from English to engineering. Cf. Sibley, *op. cit.*, pp. 68-71; also Sibley, "Education in Social Science and the Selection of Students for Training as Social Scientists," Social Science Research Council, *Items*, September 1951, pp. 25-29.

fields of economics. He should present a knowledge of mathematics through calculus and a rudimentary knowledge of the major concepts of accountancy. He should also have a breadth of knowledge, in fields outside economics, equivalent to that which the graduate of a good liberal arts college might be expected to have.

Background in fields outside economics is a crucial problem, in no sense secondary to background in economics. Many of those who argue that prior preparation in economics is unimportant do so on the ground that it is better for students to devote their undergraduate years to fields such as mathematics, history, sociology, government, philosophy, and foreign language—fields which are particularly helpful in the study of economics—rather than to economics itself. They argue that the student will be able to go further by building upon a broad background than by concentrating early on economics. There is much to be said for this point of view. Certainly, there is no merit in an undergraduate program consisting of course after course in economics and business to the virtual exclusion of other fields. However, the choice is not between the extremes. It is possible for a student to present a sound major in economics, including the basic courses mentioned above and several others, and still to acquire the desired breadth. This is the goal toward which admission policies should be directed.

As indicated above, the raising of admission standards cannot be done suddenly and without notice; otherwise the expectations of the present generation of prospective graduate students will be unjustly disappointed. However with advance notice, there is nothing to prevent an early but gradual stiffening of policy regarding the repair of deficiencies. Several universities already scrutinize candidates' backgrounds carefully and require that indicated deficiencies be made up promptly and without credit. One university has a special intensive course in economic theory, carrying no graduate credit, for those not yet prepared to take the standard graduate course. Other institutions having less rigorous policies might well consider tightening up. The requirements for the master's degree also might be raised so that the award of that degree would signify that the candidate had not only met all requirements for the degree itself but also had removed deficiencies in his background.

But the policy of requiring students to make up deficiencies should be regarded as no more than an expedient. It is an inefficient and psychologically undesirable way of handling the problem. Graduate advisers dislike the duty of assessing deficiencies and imposing the task of making them up. Students feel, quite rightly, that the making up of deficiencies is an unrewarding task which interferes with their immediate objectives. They are inclined, therefore, to shirk the job or to try merely to get by. Moreover, students cannot do as well in

their graduate studies if they suffer from deficiencies which are concurrently being repaired as they can if their preparation is adequate prior to graduate study. The only sound solution, ultimately, is to include the elements of an adequate preparation in the admission requirements. Students should be permitted to make up deficiencies concurrently with graduate study only if the deficiencies are slight or if there are exceptional circumstances. This would be possible and fair to all if the admission requirements for graduate study in economics were fully publicized.

Methods of Selection

In the selection of students prior to admission, the principal criteria are undergraduate grades, letters of recommendation, interviews, and tests scores. In practice, most universities rely heavily upon undergraduate grades and letters of recommendation; no doubt these will continue to be the principal basis for admission. Interviews are often found impracticable because of expense and inconvenience. Tests, like the Graduate Record Examinations, the Miller Analogies Test, and others are used by only a few departments and by them usually as an incidental or supplemental source of information.

The principal issue concerning methods of selection relates to the role of tests. Regardless of the particular admission policy being employed by any given institution, would more extensive use of tests aid in the selection of qualified graduate students prior to admission? A study of results from the Graduate Record Examinations indicates that these tests have been useful in predicting success in graduate school at several institutions and in many fields.[13] This study is based on experience at Columbia, Harvard, Indiana, Iowa, Michigan, Pittsburgh, Princeton, Vanderbilt, Wisconsin, and Yale. The results are not spectacular. Scores on the Graduate Record Examinations usually are not superior to undergraduate grades as predictors of graduate school success. Yet when the test scores are combined with undergraduate grades, the predictive ability is increased significantly. Even when the two factors are combined, however, the coefficients of multiple correlation seldom exceed .75 and are usually much below this figure.[14] Although tests have by no means made possible anything like certainty

[13] G. V. Lannholm and William B. Schrader, *Predicting Graduate School Success*, Educational Testing Service, Princeton, 1951. See also the earlier study: Carnegie Foundation for the Advancement of Teaching, *The Graduate Record Examination*, New York, 1941.

[14] The only data on the value of the Graduate Record Examination in predicting work in economics are from two studies at Harvard in 1939 based on samples of 24 and 60 students. Unlike investigations in most fields, these particular studies indicated that the use of test scores did not increase the ability to predict graduate school success over that with the use of college grades. In these studies the predictive value of college grades was relatively high: .85 in one and .70 in the other. See Lannholm and Schrader, op. cit., p. 38.

in the prediction of success in graduate school, it does not follow that they are useless. They do increase somewhat our ability to predict success and they may be justified on this ground alone. Moreover, by using tests and experimenting with them over a period of time, it may be possible to improve their predictive value.

But test scores are valuable not only for their predictive value but also because of what they reveal about the student—about his basic "intelligence," his mastery of economics, the breadth of his background, his strengths and weaknesses, and the gaps in his preparation. Some of these may not be highly correlated with success in graduate school but may nevertheless provide useful information for purposes of admissions, identifying deficiencies, student counselling, and later appraisals of the student. The new Advanced Economics Test which is part of the Graduate Record Examinations, impresses me as a very useful test, particularly if attention is to be given to the prior preparation in economics which the student brings to graduate school.[15]

But there is an even more important purpose to be served by tests administered prior to admission. They would help each department gain some knowledge of the quality of its applicants *relative* to those of other institutions and of its admission standards and policies *relative* to those of other universities. If the tests were to serve this purpose, it would be essential that all universities use identical tests; that all employ the same examining procedures; and that the scores of students applying, students admitted, and students rejected be made available by all institutions for purposes of comparison. The data could be made available in such a way as to conceal the identity of particular institutions.

In my judgment, it would be highly desirable to require that all prospective candidates for admission to graduate study in economics present scores on tests designed to yield measures of scholastic aptitude and proficiency in economics. The Aptitude Test and the Advanced Economics Test of the Graduate Record Examinations provide such measures and would be available to all candidates. Continuing studies of the results of these tests should be made, not only to check the validity of the tests, but also to check the validity of judgments made about students. I suspect, and this opinion has been frequently confirmed by others, that the evaluation of students in graduate school is much less discriminating than it should be. Graduate grades for example are notoriously undiscriminating. When correlations between scores on

[15] This test was devised by a committee chosen from a panel nominated by the American Economic Association. The Committee consisted of Professors Clark L. Allen, Kenneth E. Boulding, Mary Jean Bowman, Ben W. Lewis, and Joseph J. Spengler (chairman).

tests and success in graduate school are less than might be hoped, it is always possible that discrepancies may be due in part to inadequacies in faculty appraisal of graduate students, and not alone to inadequacies in the tests.

The Graduate Record Examinations program presents few administrative problems for the university and is reasonably convenient for the student. It is conducted entirely by the Educational Testing Service, a non-profit organization located at Princeton, New Jersey. Each student can take the test at or near his home. The fee is ordinarily paid by the student but can be borne by the institution on a reimbursable basis.[16]

Selection of Students after Admission

Though improvement can be made in the selection of students prior to admission, the fact remains that our ability to appraise the potential success of applicants is limited, and a very selective admission policy will almost surely result in errors in the form of denial of worthy candidates and admission of unqualified candidates. Therefore, as suggested earlier, a reasonably lenient admission policy is indicated for all but a few institutions. The major part of the selection process, then, must take place during the early graduate period after the actual performance of the student can be observed. Even in institutions with the most rigorous pre-admission selection, the weeding out of the unfit will be necessary.

Present Practices

Most graduate departments of economics have standards which the student must meet after admission if he is to remain in good standing. Among 61 reporting departments, these standards are as follows:

	Number of departments
Honors	1
B	38
B—	5
½ of work B or better	1
Not more than 6 hours of C	1
C	4
Pass a qualifying examination	3
Pass courses	8
Total	61

When a student falls below the standard, the penalty in about half the institutions is probation and in another half immediate dismissal.

[16] See Educational Testing Service, *National Program for Graduate School Selection: Prospectus for Deans and Advisers,* Princeton, 1951. A copy of this booklet should be in the files of every department chairman.

A few permit special examinations or repeating courses in fields in which the candidate has been deficient. More than two-thirds of the reporting departments indicate that they also make informal efforts, though personal advice and persuasion, to induce weak students to drop out even though they may have met the formal standards.

Student Mortality

That a substantial selection process takes place after admission to graduate study is indicated by the extent of student mortality. Precise figures on this subject are not available but I have tried to arrive at a very rough estimate by inference from a variety of data on enrollments, degrees awarded, percentage passing preliminary examinations, number of candidates preparing theses, and average residence between various points in the graduate program.

From these figures, I would guess that out of 100 students admitted to graduate standing in economics:

60 will be awarded the master's degree or will complete the first year of graduate work successfully
30 will proceed with further graduate work
20 will take preliminary examinations
17 will pass these examination
10 will receive the Ph.D.

I repeat that these are very rough estimates. They probably do not reflect the actual experience of any one institution because there are extremely wide differences.

Not all of the mortality is due to poor scholarship. Some of it is due to the fact that students achieve their study objectives before completing the Ph.D., that they secure attractive jobs, that they run out of money, that their health breaks, or that they lose interest. Apparently there is great difference among institutions in the causes of mortality. Some reported that all mortality of graduate students in economics is due to student failure to meet scholarly requirements; others said that all mortality may be ascribed to other factors; and others gave almost every possible answer between these extremes. I suspect, on the basis of these replies and my conversations on the subject, that few departments have made careful studies of student mortality or know what happens to the great bulk of graduate students who drop out at some point along the line. In particular there is little knowledge of the extent to which gifted students fall by the wayside for one reason or another.

Among the graduate professors who were queried about selection of students after admission, few thought present practice too rigorous and a substantial number thought it too lax. Their responses to a question regarding the present mortality rate were as follows:

	For first-year students[17]	For advanced students[18]
Too high	10%	3%
About right	56	49
Too low	33	43
No answer	1	5
Total	100	100

Many of those who thought mortality too low felt that there was laxity in the weeding out of poor students. From the answers to the question, however, one does not gain the impression of widespread or deep dissatisfaction with the process of student selection. There was greater concern, however, when the positive question was asked regarding present practice in the encouragement of the more capable students. Several mentioned the need of more financial assistance, of honors and awards, and of better counselling.

Selection Policy

There are several techniques which can be employed to implement a policy of rigorous selection after admission.

First, students whose undergraduate grades and test scores indicate some probability that they will be unable to earn a master's degree should be warned in advance. This warning can best be given systematically, in accordance with established rules, through some form of probationary status. Some universities, for example, place on "limited status" all graduate students whose undergraduate grades were not up to a specified standard. A student on limited status is then dropped if, at the end of his first term, he fails to make grades of a stated minimum.

Second, a formal qualifying examination can be given to all new graduate students at some specified time after admission. In the few universities now giving the qualifying, practice varies as to the interval after admission when it is given: in some, it is shortly after admission; in others, near the end of the first academic year. Wherever I encountered the qualifying examination, faculty members commended it highly as a device for screening students and discovering deficiencies, and as a basis for counselling. The examinations are mainly of an "essay" type not far different in character (but at a lower level) from the traditional comprehensive written examinations for doctoral candidates.

Third, students not on probation who fail to make specified grades should be placed on probation, and those on probation who fail to

[17] Schedule IV: 61 respondents.

[18] Schedule VII: 59 respondents.

make the standard should be dropped. In order to use this device, it is necessary that students be required to take courses for credit and to write examinations in these courses.

Fourth, the requirements for the master's degree can be made a major device for screening students. If, as strongly advocated here, the status of the degree were raised and a thesis and comprehensive written and oral examination required, the procedures surrounding the granting of the master's degree would provide an excellent device for screening candidates. The examining committee could pass on two questions: whether the individual should be awarded the master's degree, and whether he should be permitted or encouraged to proceed further with graduate work.[19] After the master's degree, little selection of students should be required—beyond that which takes place in connection with the preliminary examination for the doctorate and the dissertation.[20]

A Note on Financial Assistance to Students

An important part of the recruitment and selection of graduate students is the use of scholarships, assistantships, and other forms of financial aid. The high degree to which graduate students of arts and sciences are subsidized in American universities is a phenomenon of great interest. It is curious that graduate students in these fields are singled out for aid which, on the whole, is denied students of law, medicine, dentistry, and other fields requiring long, arduous, and expensive training. What is it, for example, that makes a student of chemistry commonly eligible for financial assistance and a student of medicine not so eligible?[21] A careful investigation of this institutional quirk, which probably enables the graduate colleges of arts and sciences to draw outstanding talent far beyond what they could otherwise

[19] A less desirable alternative to the examination of master's candidates by a committee is the circularization of all staff members regarding each candidate requesting opinions as to whether he should be encouraged or permitted to go on.

[20] A special problem regarding the selection of candidates occurs when students transfer from one university to another after having completed some graduate work. Because of the difficulty of interpreting graduate grades and letters of recommendation, it is probably desirable to supplement these sources of information with undergraduate grades and test scores. Many students transfer after completion of the master's degree. This is frequently a desirable practice and should be encouraged. If the status of the master's degree were raised, and the requirements made fairly uniform throughout the country, the fact that a student had earned a master's degree would also provide considerable information about him. At present, however, in view of the low estate to which the master's degree has fallen, a student's possession of that degree signifies little. After admission, transfer students can be subjected to the various screening procedures such as probationary status, requirement of minimal grades, and qualifying examinations.

[21] For an interesting discussion of the finance of students see, Ernest Van den Haag, "Higher Educationa on the Cuff," *Fortune*, 1952.

TABLE 21.—FINANCIAL ASSISTANCE TO FIRST-YEAR GRADUATE STUDENTS OF ECONOMICS, 1951–52[a]

Kind and amount of work involved	Number receiving tuition only	Number receiving payment in cash or kind (over and above tuition) of:						Total
		0–$250	$250–499	$500–749	$750–999	$1,000–1,499	$1,500–and over	
No service to university	30	6	7	7	4	3	—	57
Teaching, total	1	—	2	5	8	16	1	33
Quarter-time or less	—	—	2	5	7	—	—	14
Half-time[b]	2	—	—	—	1	16	1	19
Research, total	4	—	8	3	10	11	3	39
Quarter time or less[c]	2	—	6	2	6	5	—	21
Half-time	—	—	—	1	1	6	—	8
Three-quarter time[d]	2	—	2	—	3	6	—	7
Full-time	—	—	—	—	—	—	3	3
Clerical duties, total	4	20	13	2	5	7	—	51
Quarter-time or less	1	20	9	—	4	—	—	34
One-third time	—	—	2	2	1	5	—	10
Half-time	1	—	—	—	—	2	—	3
Three-quarter time	2	—	2	—	—	—	—	4
Grand Total	39	26	30	17	27	37	4	180

[a] Schedule III: data reported by 38 universities.
[b] Includes 6 assistants the nature of whose work was not specified.
[c] Includes third-time.
[d] Includes two-thirds time.

command, is a subject that exceeds the bounds of this study.

Table 21 gives data on financial assistance during 1951-52 to first-year graduate students of economics at 38 universities. Of the 180 receiving assistance, 39 (22 percent) received tuition only and about 85 (47 percent) received tuition and $500 or more. A substantial number (57 or 32 percent) performed no services to their universities; the remainder were divided among teaching, research, and clerical duties.

Table 22 presents corresponding data on financial assistance to advanced graduate students at 27 universities. At these institutions assistance was given to 373 advanced students. The great majority of these received cash over and above tuition, most were serving as teachers, and most were employed half-time or more.

The number of first-year students receiving financial assistance at 33 reporting institutions was approximately 13 percent of the total graduate student body, and the number of advanced students receiving aid at 23 reporting institutions was about 30 percent of the total graduate student body.[22]

[22] The percentage of first-year and advanced graduate students receiving financial aid varied from 0 to 100 among the several institutions for which data were available. The distribution is as follows: (*see tabulation at bottom of next page*).

TABLE 22.—FINANCIAL ASSISTANCE TO ADVANCED GRADUATE STUDENTS OF ECONOMICS, 1951–52[a]

Kind and amount of work involved	Number receiving tuition only	Number receiving payment in cash or kind (over and above tuition) of:						Total
		0–$250	$250–499	$500–749	$750–999	$1,000–1,499	$1,500–and over	
No service to university	27	5	8	6	3	16	5	70
Teaching, total	—	1	6	20	29	68	85	232
Quarter-time or less[b]	—	—	4	8	18	24	14	54
Half-time	—	1	2	12	11	38	—	101
Three-quarter time[c]	—	—	—	—	—	6	35	41
Full-time	—	—	—	—	—	—	36	36
Research, total	—	—	2	1	—	13	5	21
Quarter-time or less	—	—	1	—	—	—	—	1
Half-time	—	—	1	1	—	9	1	12
Three-quarter time[c]	—	—	—	—	—	4	1	5
Full-time	—	—	—	—	—	—	3	3
Clerical duties, total	1	5	7	3	6	20	8	50
Quarter-time or less[b]	—	5	7	3	5	1	—	21
Half-time	1	—	—	—	1	19	6	27
Three-quarter time[c]	—	—	—	—	—	—	1	1
Full-time	—	—	—	—	—	—	1	1
Grand total	28	11	23	30	38	117	103	350[d]

[a] Schedule VI: data reported by 27 universities.

[b] Includes third-time.

[c] Includes two-thirds time.

[d] In addition, financial assistance was given to 23 students for whom data on amount and duties are not available.

The extent of financial aid is measured not alone by the percentage of resident graduate students who get aid in any one year, but also by the percentage of students who receive aid *at some time* in their graduate careers. The latter percentage is considerably higher because

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Continuation of footnote 22.

Percent of students receiving financial aid	Number of institutions	
	First-year students	Advanced students
0	5	3
1–19	10	4
20–39	9	9
40–59	3	5
60–99	3	1
100	3	1
Total	33	23

only a minority of students receive aid during the entire period of their graduate study.

Table 23 shows data on the extent of financial assistance as reported by present and former graduate students. These figures show that 58 percent of present graduate students and 79 percent of former graduate students received aid at some time in their graduate careers. A little more than a fourth of both groups indicated that they had received aid during the entire period of their graduate study to date. One-sixth and one-fifth of the two groups respectively reported that their aid had involved no work. The percentage of students receiving financial

TABLE 23.—FINANCIAL ASSISTANCE TO GRADUATE STUDENTS OF ECONOMICS AS REPORTED BY PRESENT AND FORMER GRADUATE STUDENTS[a]

	1951–52 graduate students			Former graduate students		
	First-year[b]	Advanced[c]	Total	Master's[d]	Ph.D.[e]	Total
Received financial aid at some time during graduate career:						
Yes	37%	73%	58%	50%	87%	79%
No	22	16	19	44	12	19
No answer	41	11	23	6	1	2
Total	100	100	100	100	100	100
Received financial aid during:						
Entire graduate residence	34%	24%	29%	28%	26%	27%
Half or more	3	37	22	17	43	38
Less than half	—	12	7	5	18	14
No aid or no answer	63	27	42	50	13	21
Total	100	100	100	100	100	100
Kind of work performed for financial aid:						
None	22%	11%	16%	9%	23%	20%
Teaching	3	36	23	18	33	31
Research	5	5	5	5	8	7
Clerical	3	5	4	5	7	6
Teaching and clerical	2	6	4	4	8	7
Teaching and research	—	10	6	6	8	7
Other	2	—	—	3	—	1
No answer	63	27	42	50	13	21
Total	100	100	100	100	100	100

[a] Schedules IX and X.
[b] 59 respondents.
[c] 81 respondents.
[d] 54 respondents.
[e] 164 respondents.

assistance was uniformly greater among advanced students or Ph.D.'s than among first-year students or masters.

Most universities require that graduate students who are employed as assistants carry a reduced load of graduate study. Practice as to the amount of reduction varies considerably (see table 24). The variation is particularly marked for students working full-time.

The view is sometimes expressed that the employment of graduate assistants is a form of exploitation or sweat-shop labor. At the other extreme, the view is often stated that the work of a graduate student constitutes a form of apprenticeship or an induction into the profession which is the most valuable part of his graduate experience. In general, opinion in the profession is much closer to the second of these views than to the first. However, one's judgment on the educational and other values in graduate assistantships will depend on the type and amount of work and on the amount of remuneration.

On the question of whether universities should provide financial aid, graduate professors of economics are strongly and almost unanimously

TABLE 24.—GRADUATE LOAD PERMITTED STUDENTS WHO ARE EMPLOYED AS ASSISTANTS[a]

Permitted graduate load as fraction of full load	Number of reporting institutions			
	Quarter-time work	Half-time work	Three-quarter time work	Full-time work
Full	10	2	—	—
$\frac{3}{4}$ or more	20	3	—	1
$\frac{2}{3}$ or $\frac{3}{5}$	—	10	3	—
$\frac{1}{2}$	—	10	10	2
$\frac{2}{5}$ or $\frac{1}{3}$	—	—	1	6
$\frac{1}{4}$ or $\frac{1}{5}$	—	—	5	10
No information	29	34	40	40

[a] Schedule III: 59 respondents.

favorable. When asked about the objectives of this aid, the replies were as follows:

To encourage students to enter graduate study in economics who otherwise would not go on to advanced work	74%
To ease the financial strain of graduate students so that they may devote themselves more fully to their studies	77%
To insure an adequate flow of first-year graduate students to the department	40%
To obtain the services of graduate students for teaching, research, and other departmental duties	34%
To give graduate students an apprenticeship in professional work	45%

Most respondents thought that several of these objectives could be achieved concurrently, and therefore that the provision of assistant-

ships and scholarships for graduate students is a highly desirable practice.

When asked whether there are elements of exploitation in the provision of assistantships, the large majority of the professors thought not, and many of these felt that there are valuable educational values to be gained. Most of the few who thought there is exploitation in the assistantship system felt that the experience is good but that graduate students are underpaid for it. A considerable number, however, raised questions about *teaching* assistantships—not from the point of view of the assistant teachers but from the standpoint of their undergraduate students. In personal conversations on this subject I found a considerable number of professors who feel that the assistantship system involves an excessive sacrifice of undergraduate education for the sake of attracting graduate students or of cutting instructional costs. Most of the suggestions for improvement of the assistantship system centered around higher pay, requiring less work (particularly less routine or menial work), more careful selection of assistants, and more careful supervision of assistants.[23] It was clear from these replies, however, that most professors regarded the assistantship system as desirable.

When present and former graduate students who had had assistantships were asked their opinion concerning the value to them of the work required, the responses were highly favorable, as follows:[24]

Contributed materially	61%
Contributed some	13
Neutral	7
Diverted too much time, but contributed	10
Diverted too much time, but not serious	2
Diverted too much time, a serious problem	7
Total	100

It is apparent that the system of financial aid now in operation has strong support from both faculty and students. My principal recommendation is that financial aid be administered, so far as possible, with the purpose of discovering, encouraging and developing superior talent. This would suggest substantial allotments to first-year students. My impression is that financial aid is often used to encourage maximum total enrollments of graduate students rather than to encourage the best students to enter graduate work and to pursue their studies to completion.

[23] See Chapter 10.

[24] Schedules IX and X: 358 respondents.

Chapter 7

SUBSTANTIVE CONTENT OF GRADUATE STUDY

In this and the following three chapters the content of graduate education in economics will be considered. This chapter is concerned with subject matter in economics and related areas; the following three chapters will deal respectively with the "tool" subjects, training for research, and training for college teaching.

The kind of subject matter in economics and related areas that finds its way into graduate curricula is a resultant of several factors. It is determined partly by the traditions of economic education, which surely exert a profound influence, and it is determined by current trends in the development of the field, by the nature of the problems which are presently demanding the attention of economists, and by the special intellectual interests of particular faculty members. The curriculum—both in the list of courses offered and in the content of courses—is constantly adapting to new developments in the field and to new conditions in the world. Yet a kind of stability and continuity is achieved as a product of well-established tradition.

Proliferation of Economics

Economics, like other branches of learning, has undergone remarkable change in the past generation. New areas have been opened up, old ones have been refined and elaborated, new tools of analysis have been introduced, and new sources of data have been provided. Much of this change has taken place as economics has faced up to contemporary problems created by world conflict, new technology, economic instability, and growth of power blocs.

A mere recital of some of the areas of economics in which important developments have occurred is impressive. Among them are: monopolistic competition; theory of the firm and administrative behavior; theory of national income and employment; fiscal policy; dynamic economics; theory of growth and development; national income accounting; national economic planning; econometrics and mathematical economics; input-output analysis; and application of public opinion and behavioral research to economic problems. To this list could be added the great proliferation of such fields as statistics, labor economics, international economics, agricultural economics, area studies, welfare economics, industrial organization, and demography.

These developments in economics have left their imprint on graduate curricula. The content of old courses has been changed, new ones have been added, and a few have been dropped. Even the rapid increase

in number and variety of courses at most universities may be attributed partly to changes in the intellectual content of the field. A check of the catalogs of 10 leading universities indicated that these institutions together listed 389 courses in economics available to graduate students in 1929 and 628 such courses in 1952, an increase of 61 percent.[1] The corresponding figures for strictly graduate courses (i.e., excluding courses open both to graduate and undergraduate students) were: 136 courses in 1929 and 332 in 1952, an increase of 144 percent.

Another effect of new developments in economics has been the introduction of new fields of specialization. Today it is not uncommon for doctoral students to offer, for their examinations, such fields as employment theory, national income accounting, or economic development—fields which were seldom regarded as specialties a generation ago.

But perhaps more important than these changes has been the introduction into economics of enormously greater refinement of detail and more elaborate technical apparatus. A generation ago, graduate students in most universities concentrated on mastering Marshall's *Principles* which was a kind of bible for economists; they studied a fairly non-mathematical and non-theoretical type of statistics; they read a discursive type of economic history and history of economic thought; and they specialized in several other fields, such as public utilities, money and banking, foreign trade, or labor, no one of which required highly specialized or difficult technique. Today, on the other hand, graduate students of economics are confronted with a vast array of concepts, techniques, and detailed theoretical constructions. They perforce live in a strange world of indifference maps, kinked demand curves, cross elasticity, marginal propensity to consume, liquidity preference, net national product, sampling error, linear programming, and input-output matrices. They spend much of their time gaining familiarity with specialized concepts and techniques, and their success as graduate students is gauged largely by the degree to which they master them.

The graduate student of a generation ago, having less technical detail to cope with, was perhaps able to devote more of his time to rounding out his general education, learning something about the related social disciplines, exploring philosophy, and acquiring historical and institutional knowledge. It is possible that his graduate studies were less hectic than those of his more recent successors and that he had more time to digest, to correlate, and to philosophize.

This may well be an exaggerated picture of the differences between

[1] The institutions included were Harvard, Illinois, Iowa, Michigan, New York, Ohio State, Princeton, Stanford, Wisconsin, and Yale. An effort was made to achieve full comparability of these figures for the two selected years. In some cases, this was difficult because of changes in administrative organization and in nomenclature. However, I believe the figures presented are reasonably accurate.

graduate study of a generation ago and today. As one of my critics has said, there was always too much to learn in economics, and some of the increasing emphasis on formal technique may be offset by decreasing emphasis in other areas, notably history of economic thought and institutional study. Yet I feel that the comparison is essentially correct; my impression is shared by many of the economists with whom I talked. Economics is not, however, unique in this respect. The proliferation of subject matter and increasing technicality which I have described apparently characterizes physics, chemistry, biology, psychology, and many other fields in which rapid scientific progress is occurring and in which there are many practical applications of new developments. A kind of Malthusian principle seems to be at work in which knowledge grows at a geometric ratio while the time that can be spent by students in learning it grows at no more than an arithmetic ratio. Some have suggested that the problem is unusually acute in economics—a field in which the empirical testing of theory is difficult. Since old theories are never disproved decisively the discipline experiences accretion without elimination.

The proliferation of subject-matter and the increasing technicality of economics is probably the underlying basis of most criticisms of the content of graduate education in economics today. Perhaps the most frequent of these criticisms is that we are trying to cram too much into our graduate students—more than they can be expected to assimilate in the few graduate years. The result, it is said, is superficial knowledge of many things but sound and thorough mastery of none.

A second and related criticism is that students are so completely immersed in learning the technicalities of the field, and are under such great pressure to do so, that they do no longer have time to grasp the full significance of what they are learning nor the opportunity to gather in a background of broad historical, philosophical, and institutional insights which would give them the perspective and judgment necessary for successful work as economists. Since many of the technicalities of the field are in economic theory, this criticism sometimes takes the form of an attack on what is termed the over-emphasis on theory at the expense of the so-called applied fields. The theoretical bias is said to extend even to the courses which were once approached largely by historical and institutional methods, e.g., public finance, international economics, and money and banking. The result, it is said, is a narrow-minded generation of economists who are almost oblivious of anything that happened before 1929, who have little sense of politics or of history, who lack judgment, who are unable to distinguish between the postulates of theory and the facts of the real world. Thus, it is concluded, the stress on technique, and the closely-related emphasis on

theory, has been carried too far. It is time to retrace our path toward a more equal balance between the technical-theoretical and the historical-philosophical-institutional approaches.[2] This second criticism was expressed to me by many persons—professors, graduate students, and employers of economists. It was implicit in Professor John H. Williams' presidential address before the American Economic Association in 1951.[3] That this opinion should be widespread was a distinct surprise to me because I had been expecting to hear more frequently the opposite contention, namely, that our training in the technicalities and in economic theory is not sufficiently rigorous.

A third criticism of current graduate education pertains to over-specialization. It is said that the inability of economists—either during their graduate years or later on—to master the entire intricate and ramified field leads to excessive and premature specialization. It is recognized that this specialization may be unavoidable, since no man may be expected to master the whole field, yet there is a vague sense of uneasiness based on the feeling that students do not achieve the desired breadth of view. No doubt this attitude derives from the sense of interrelatedness of economic phenomena which most older economists regard as the very essence of the discipline. They feel that the economy, to be understood, must be viewed as a system in its entirety, and that excessive specialization destroys or blurs its systemic nature. Such critics, therefore, tend to deplore the present state of the discipline and to hope for the second coming of a John Stuart Mill or an Alfred Marshall to fit the pieces together into one intellectually satisfying—and at the same time reasonably non-mathematical—system. Some are optimistic and look for the new messiah to do his work in the next few years. Others, more pessimistic, feel that the science has advanced in so many directions and on so many fronts that a new synthesis is no longer feasible. According to this latter view, the economic generalist will soon become as scarce and as anachronistic as a Physiocrat or a Manchester Liberal.

The proliferation and "technicalization" of economics raises significant issues concerning the content of the graduate program. Should there be a common core and what should be its nature? What should be the role of economic theory? of statistics? of economic history? How much breadth should be expected? To what extent is specialization permissible? These are the questions to be considered in the remainder of this chapter.

[2] A variant of the criticism that theory is over-emphasized is that theory is associated with left-wing ideological biases.

[3] "An Economist's Confessions," *American Economic Review*, Mar. 1952, pp. 1-23.

A Common Core

In Chapter 4, I suggested that a "common core" of essential content be required of all graduate students in economics who are candidates for the Ph.D. and a similar but less rigorous core be required of candidates for the master's degree. A great majority of graduate professors are favorable to such a common core. Their responses on the question of whether "certain courses should be taken or certain subject matter learned by all or most candidates" were as follows:

	For master's candidates[4]	For doctoral candidates[5]
Yes	72%	73%
Possibly	16	9
No	7	10
Uncertain	3	2
No answer	2	6
Total	100	100

Almost all of those favorable to the common core thought it should be formally required of all students. But on the question of the content of the core, there was near-agreement on only one subject, namely, economic theory. Table 25 presents a tabulation of replies to the question of what courses or fields *ought* to be in the core and also indicates the percentage of institutions in which each field is formally required or elected by the great majority of students. As shown in the table, economic theory is recommended by 90% or more of the respondent professors, is formally required in nearly two-thirds of the reporting institutions, and usually elected by students in most of the remaining institutions. A little more than half the responding professors are agreed on statistics and economic history for doctoral candidates; otherwise no field draws a majority vote for inclusion in the core. Apparently, many professors are dissatisfied with what they consider the inadequate emphasis being given to statistics and economic history because the percentage recommending these subjects for inclusion in the core is substantially higher than the percentage of institutions in which these subjects are required or usually elected. On the other hand, some of the professors apparently feel that history of economic thought is being overdone because the percentage voting for it is smaller than the percentage of institutions in which it is required or usually elected.

Additional opinion of graduate professors on the relative importance of various fields was obtained through questions regarding over- or under-emphasis (Table 26). A substantial percentage thought that

[4] Schedule IV: 61 respondents.

[5] Schedule VII: 59 respondents.

TABLE 25.—PROPOSED AND ACTUAL CONTENT OF THE "COMMON CORE"

Course or field	Percent of respondent professors recommending each course or field		Percent of reporting institutions in which course or field is formally required or usually elected					
			For master's candidates[c]			For doctoral candidates[d]		
	For master's candidates[a]	For doctoral candidates[b]	Required	Usually elected	Total	Required	Usually elected	Total
Economic theory	90%	98%	63%	35%	98%	65%	30%	95%
Statistics	44	53	16	5	21	22	5	27
Economic history	26	55	6	6	12	14	19	33
History of economic thought	28	37	25	12	37	49	27	76
Monetary and banking theory	24	28	4	12	16	5	32	37
Employment theory and fiscal policy	18	20	—	9	9	3	16	19
Labor economics	6	5	1	19	20	—	30	30
Public finance	10	2	3	7	10	—	19	19
Business cycles	—	7	3	7	10	—	8	8
International economics	—	2	—	10	10	—	22	22
Research methods	8	—	3	—	3	3	5	8
Mathematical economics or econometrics	2	10	1	—	1	—	—	—

[a] Schedule IV: 61 respondents.
[b] Schedule VII: 59 respondents.
[c] Schedule III: 59 respondents.
[d] Schedule V: 27 respondents.

economic theory, statistics, and economic history are being under-emphasized in the study programs of their graduate students; and some also thought that monetary and banking theory, mathematical economics, and courses outside economics were being under-emphasized for their doctoral students. A significant percentage thought that economic theory, labor economics, and courses in applied economics were being over-emphasized.

Questions regarding the relative value of various courses and fields were also directed to present and former graduate students. The replies are summarized in table 27. It is evident that relatively high valuations are placed by present and former graduate students on economic theory and statistics. Economic history and history of economic thought are valued well below these two. Of some interest is the substantial percentage of former graduate students who regretted that they had not had courses in research methods or courses in philosophy or social sciences outside economics.

My inquiries regarding the "common core" lead to two conclusions: (1) almost everyone agrees there should be a required common core, but (2) economic theory is the only subject which all agree should be included. Regarding the inclusion of other subjects there are substantial differences of opinion—although there is strong support for

TABLE 26.—OPINIONS OF GRADUATE PROFESSORS REGARDING RELATIVE EMPHASIS ON VARIOUS COURSES OR FIELDS

	Percentage of respondent professors expressing opinion that course or field is:			
	Under-emphasized		Over-emphasized	
	For master's candidates[a]	For doctoral candidates[b]	For master's candidates[a]	For doctoral candidates[b]
Economic theory	16%	12%	8%	9%
Statistics	13	15	—	—
Economic history	10	22	—	—
History of economic thought	3	7	—	5
Monetary and banking theory	—	9	3	—
Employment theory and fiscal policy	2	—	3	3
Labor economics	—	—	5	9
Public finance	2	3	—	2
Business cycles	—	2	—	—
International economics	2	5	—	—
Research methods	—	—	—	—
Mathematical economics or econometrics	2	9	—	2
Courses in applied economics	2	5	13	10
Courses in philosophy or social sciences outside economics	8	14	2	—

[a] Schedule IV: 61 respondents.
[b] Schedule VII: 59 respondents.

statistics, economic history, history of economic thought, and monetary and banking theory. I suspect, on limited evidence, that there is considerable difference of opinion also on the *kind* of economic theory that should be included.

Despite this lack of unanimity, I feel strongly that there should be a well-established common core and that the profession should work toward general agreement on its content.

In developing the content of the core, it is essential to include only genuine fundamentals which *all* students should be expected to master, and to strip the core of non-essentials. The several courses should be worked out in sequential and integrated fashion with clear agreement among professors as to coverage, omissions, and relationships—thus insuring adequate coverage while avoiding duplication. Only in this way can the core serve its purpose without taking over an undue proportion of the curriculum. Incidentally, there are great differences among graduate departments in the degree of teamwork and cooperation among professors in the planning of their courses and examinations. In some, each staff member seems to be a law unto himself. He teaches

and holds students responsible for whatever he chooses without joint consultation or planning. In others, great care is apparently exercised in working out balanced, non-duplicating, and inclusive programs of studies. Needless to say, I strongly recommend the latter policy for the core courses. The traditional freedom of professors should be tempered by cooperation in the planning of the core. If there is to be unbridled freedom, it should be reserved for specialized courses lying outside the central nucleus.

The requirements in economics and related fields, as recommended in Chapter 4, and in the remainder of this chapter are summarized in table 28. These include the common core and other requirements. These requirements could be applied either by means of required courses or by means of comprehensive examinations. I recommend the latter method. The achievement of required proficiency in a field of knowledge should be distinguished from the passing of given courses. More-

TABLE 27. OPINIONS OF PRESENT AND FORMER GRADUATE STUDENTS REGARDING VALUE OF VARIOUS COURSES AND FIELDS

	Graduate students in residence in 1951–52[a]			Former graduate students[b]		
	Of little value	Of great value	Did not take; should have been required	Of little value	Of great value	Did not take; should have been required
Economic theory	6%	38%	1%	7%	39%	6%
Statistics	4	25	9	3	26	17
Economic history	4	11	1	3	6	3
History of economic thought	2	12	7	1	12	2
Monetary and banking theory	3	11	—	1	7	—
Employment theory and fiscal policy	—	1	—	—	—	—
Labor economics	—	9	—	1	11	1
Public finance	—	5	1	—	4	1
Business cycles	—	3	—	—	5	—
International economics	—	6	—	—	2	—
Research methods	1	1	2	—	3	11
Mathematical economics or econometrics	1	6	2	1	4	4
Business administration	3	6	3	2	6	4
Industrial research	4	7	1	—	9	1
Business finance	—	2	—	—	4	1
Courses in philosophy or social sciences outside economics	—	3	4	—	8	8

[a] Schedule IX: 140 respondents.
[b] Schedule X: 218 respondents who received advanced degrees in 1939–40 or 1949–50.

over, students should be free to prepare for examinations not only by taking courses but also by independent study. In any event they should expect to do independent study beyond the requirements of courses. Nevertheless, I have indicated the requirements in terms of courses or equivalents in order to express the nature of the suggested requirement with some concreteness.

Apparently there is general agreement among graduate professors that requirements should be in terms of performance on examinations rather than passing of courses, yet many professors have told me that this distinction is not easy to apply in practice. Even with the best of intentions, there is a tendency for students to prepare for examinations almost exclusively by taking courses and an equally pronounced tend-

TABLE 28.—SUGGESTED SUBSTANTIVE REQUIREMENTS FOR GRADUATE STUDENTS IN ECONOMICS[a]

	For Ph.D. candidates	For master's candidates
Common core:		
Economic theory including value, distribution, money, employment, and other topics	Equivalent of two year courses with prerequisite of intermediate theory and undergraduate money and banking	Equivalent of one year course with prerequisite of intermediate theory and undergraduate money and banking
Economic history	Equivalent of one year course	None
History of economic thought	Equivalent of one half-year course	None
Statistics	Equivalent of one year course with prerequisite of undergraduate statistics	Equivalent of one half-year course with prerequisite of undergraduate statistics
Research methods	Equivalent of one half-year course or coverage in connection with other courses	None
Other substantive requirements:		
Selected special fields of economics	Two to four fields each represented by the equivalent of at least one year course for which undergraduate course is a prerequisite. Fields in the common core may be selected if advanced work is done over and above the core requirement	One field represented by the equivalent of one year course, or two fields each represented by the equivalent of one semester course
Other fields of economics	Knowledge of many fields equal to that which could be acquired by reading elementary survey textbooks	Knowledge of 3 additional fields equal to that which could be acquired from reading elementary survey textbooks
Fields outside economics	Background such as would be expected of a highly-educated man	Background such as would be expected of one who had completed undergraduate work in a good liberal arts college

[a] See pp. 42-4, 60-1.

ency for comprehensive examinations to be based largely on the content of courses.

Economic Theory

Perhaps the most difficult problem in selecting a suitable common core is to decide on the nature of the courses in economic theory. The difficulties arise chiefly from the fact that the field has been rapidly changing and growing. Most teachers are uncertain as to what should be included and what omitted, and are unsure as to the amount of technical detail that is desirable or necessary. In many departments there is dissatisfaction with present offerings in theory, and most professors are continuously revising and experimenting with their courses.

Unfortunately, I do not have any definite or detailed recipe for the content of the core offering in theory. I doubt if these offerings should or can be identical in all institutions. However, on the basis of many conversations and observations, I can make some fairly concrete suggestions.

First, the core in theory should be the equivalent of a one-year course for master's students and a two-year course for doctoral students. I am assuming that theory would include the following topics: production, value, distribution, general equilibrium, money, income, employment, and possibly others.[6]

Second, the core courses in theory should present a fairly conventional but up-to-date and integrated treatment of the subject. They should acquaint the student with some of the important modern literature and with current intellectual issues in the field, but should not pursue minor details, digressions, or fine-spun analysis very far. The adjective "conventional" was used to suggest that these courses should not be the occasion for professors to ride their hobbies or to display their virtuosity. Individualistic approaches or emphasis of specialties, which are entirely appropriate in their place, should be reserved for other courses. In the core courses in economic theory, the student should be permitted a broad but rigorous view of the field as it is generally understood and accepted in the profession at the time. This suggestion is relevant especially to those departments which are dominated by particular schools of thought or points of view. As one ardent institutionalist said to me: "We should teach conventional theory to our students, if for no other reason, so that they will be able to combat the stuff competently."

[6] Some of my critics feel that two years of theory for the aspirant Ph.D. is excessive as a minimal requirement. While I do not wish to be dogmatic on this I feel strongly that if theory is defined to include as many topics as I have indicated, it cannot be treated adequately for the purposes of doctoral students in less than two years. Many experienced professors support me in this view.

Third, the core courses in economic theory should not be expected to serve too many purposes, or too many classes of students. Otherwise there is danger that they will serve none adequately. In some institutions a single course in theory—usually a year course—is available to students offering economics as a minor, is a required course for graduate students in business administration, is the core course for graduate majors in economics, and is the most advanced work offered for those specializing in theory. I submit that no single course can serve all these purposes. If the attempt is made, economics majors are almost certain to be short-changed.

This problem is particularly acute with reference to graduate students in business administration. In some institutions, these students are formally handled as majors in economics and are required to stand an examination in theory. Being practical-minded persons, they resent this requirement; in particular, they and their professors are resentful when failure in theory blocks their progress toward an advanced degree. Then, in order to avoid internecine trouble or to avoid losing the business administration students, efforts are made to soften the basic theory courses to the detriment of the *bona fide* economics majors. In other institutions in which separate degrees are granted to majors in business administration, the same problem arises when economic theory is required of business administration students. If the theory courses are sufficiently rigorous to be appropriate for economics majors, objections will be heard from business administration; if the courses are modified to meet these objections, they will no longer be suitable for economics majors. My firm conviction is that there is only one proper solution to this problem. Sound courses for graduate economics majors, resting on a prerequisite of undergraduate economic theory and providing a rigorous exercise in the fundamentals of the subject, should be offered. All economics majors should be required to take these courses or their equivalent—master's candidates for one year and doctoral candidates for two years. They should be open to other students who are prepared for them, but without any concessions. If these courses do not meet the needs of minors, business administration students, and others, one or more special courses for these groups might well be organized, but no economics majors should be permitted to substitute the standards of these special courses for those of the core courses in theory intended for majors. The argument for separating the several classes of students in theory is strengthened since the theory needs of the students of business administration are probably rather different from those of economics majors. This raises the interesting question as to what kind of theory is appropriate for business students, but that is beyond the scope of this study.

Fourth, advanced courses in theory should be provided, beyond the core courses, for those who wish to offer theory as one of their special fields. In many institutions there is no provision for this need.

Fifth, the nature of the required work in economic theory should be such that its relevance would be evident to students regardless of their intended special fields or career objectives. In some institutions I noted the tendency of students to regard economic theory as a hurdle—something like the foreign language requirement—which must be surmounted but which is not considered relevant to one's major interest in corporation finance, labor economics, transportation, agricultural economics, or other applied fields. This condition is clearly deplorable. It is due partly to the manner in which theory is presented, and due partly to the manner in which other fields are treated. Many courses in theory are highly abstract and other-worldly, and many teachers of theory apparently make little effort to show how it is used in the solution of practical and intellectual problems. I believe that the best teachers of theory demonstrate its pertinence and usefulness. They draw upon historical and statistical illustrations. They show by example how theory is used in the solution of practical problems. They demonstrate its relation to empirical methods in the advancement of knowledge. For them, theory is not an intellectual exercise antiseptically removed from all contact with real problems and issues. Teachers in other fields also need to help in linking theory to other branches of economics. The various so-called applied fields differ in the extent to which they have traditionally drawn upon theory. Fields such as public utilities, transportation, corporation finance, economic history and labor have not ordinarily been closely linked with economic theory, whereas, fields such as international economics, money and banking, business cycles, and public finance have maintained very close ties with theory. It seems to me essential that students should be called upon to use theory, to varying extents, in all of their economic studies and should have repeatedly impressed upon them the indispensability of theory in all branches of economics. I particularly feel that the ties with theory should be much closer than they have customarily been in the core areas of economic history and statistics.

Economic History

The place of economic history as an intellectual discipline and as a part of graduate instruction is today both fluctuating and controversial. As indicated in table 25 a quarter of the respondent graduate professors thought it should be included as part of the core for master's candidates, and more than half thought it should be required of all doctoral candidates. In practice, economic history is required or usually

elected by master's students in only 12 percent and by doctoral candidates in 33 percent of the reporting institutions. This suggests that many professors feel that this field should be given a more prominent place in the graduate program than it has held in recent years; and in conversations I detected a widespread desire to devote more attention to economic history. I believe that economic history should be part of the core for Ph.D. candidates. It is doubtful, however, if there is sufficient time in the master's program for it to be a requirement.

The recent growth of interest in economic history is apparently a reaction to the trend of economics over the past twenty years when enormous emphasis was given to economic theory (including the theory of income and employment) and when the applied fields were preoccupied largely with pressing policy issues. The result, many think, has been the production of a generation of narrow economists who know little about events before 1929 and who lack the kind of perspective which can come only through the study of developments over long periods of time. In particular, it is held, recently-trained economists are unaware that current public problems and issues have been faced before; they fail to see the modern economy in relation to the broad historical developments of which it is only a temporary phase; they fail to recognize the difficulties of shaping our economic destinies or of predicting future events; they are unable to visualize the long periods of time required and the resistances encountered in bringing about economic change; they fail to comprehend the importance of non-economic variables in the course of economic development; they lack appreciation of the complexities of reality; and they do not understand the importance of changing institutional patterns in the determination of economic affairs. According to this view our present generation of graduate students, because of their preoccupation with theory based on limited postulates and their exclusive attention to problems covering a limited time span, are lacking in wisdom and judgment.

Many of those favoring the requirement of economic history endorsed it only on the condition that it be a certain kind of economic history—and they were deeply critical of the kind which has commonly been offered. In general, the complaints against the field were these: (1) that it tends to be a mere chronicle of more or less unrelated facts without any theoretical orientation—that it asks and answers no important general questions but merely recites a string of superficial events, and (2) that it is intellectually dull and lacking in challenge for the student. Obviously these complaints were not universal nor were they levelled against every course in economic history—yet they were sufficiently frequent to represent a solid block of opinion.

In my inquiries about economic history, I found that much experi-

mentation is in progress and that the actual courses being given vary widely among institutions. They differ in relative emphasis upon European, American, and "World" economic history. This often depends on the interests of the professors involved. Some of the courses are in the form largely of factual and detailed chronicles of events and developments; others attempt to organize the subject around broad themes such as "economic development" and to derive tentative generalizations about causation or process. The current interest in the field of economic development and foreign aid has stimulated this latter type of course. Some teachers of economic history are attempting to relate it to economic theory by using episodes in economic history to illustrate principles of economic theory and *vice versa*. In this way, they are trying to use economic history as a kind of laboratory for theory. Others are combining economic history and history of economic doctrine, and attempting to show the interrelations between the two. I was much impressed by several courses of this type, though I suspect that there are few economists who are equipped to do this successfully. Other teachers are emphasizing the use of quantitative data in the form of long statistical time series and are thus attempting to combine the inductive-historical and the inductive-statistical methods. Others try to stress episodes in economic history in which parallels or contrasts with present problems or developments can be found. Others consider the job of the economic historian to be that of tracing the institutional development of the whole economic system, and their courses tend to center around the rise and development of capitalism. These various approaches to the subject are not mutually exclusive, and there are many examples of attempts to achieve various combinations. The field is extremely broad and extensive, however, and it is not feasible to attempt to do all these things in a single year course.

I am not in a position to recommend any particular approach to economic history for purposes of the required core. I am sure that valuable courses worthy of inclusion in the core for Ph.D. candidates could be developed along several different lines, and that the particular type of course to be given in any institution must be related to the background and interests of the professor who is to give it. I find myself sympathetic toward the criticisms of conventional economic history and favorably disposed toward the efforts to join economic history more closely to economic theory, economic development, history of doctrine, and statistics. I believe that out of the current ferment in the field something exciting can be developed and that it could provide a needed antidote to the provincialism and lack of perspective which has emerged from the recent general preoccupation with theory and current public issues during the past several decades. At the moment the greatest

impediment to progress in economic history is the shortage of personnel in the field, that is, personnel sufficiently conversant with modern economic theory and statistics to offer courses which will be intellectually challenging and will contribute to the education of economists.[7]

A final comment is in order regarding the question frequently asked, whether graduate students in economics should not take general social and cultural history rather than economic history as given in economics departments. Surely no one would look with disfavor upon general history as a field worthy of study by graduate students of economics, and would recommend to any student that he acquire a broad historical background if possible. Certain courses in general history would be preferred to some courses in economic history. Yet, it is probable that economic history, given by persons trained in economics and emphasizing the economic issues of the past and the development of economic institutions, is peculiarly fitted to the needs of graduate students in economics. General history must be thought of as a desirable addition to, but not as a substitute for, economic history.

Statistics

The opinion that statistics belongs in the common core is widespread though not universal. About half the respondent professors recommend that it be included and in about a fourth of the reporting institutions it is required or usually elected (see table 25). Employers of economists in business and government also frequently mentioned statistics as a need (or lack of statistical training as a weakness) of newly-trained economists with master's degrees or Ph.D.'s.

My judgment is that statistics belongs in the common core as part of the training of all economists, and that the equivalent of a full year course should be required of both master's and Ph.D. candidates. The objectives of the core requirement in statistics should, however, transcend mere training in statistical technique. It should provide a thorough background in statistics from the point of view of scientific method and logic and it should give an understanding and appreciation of inductive method as the working partner of theory. On the technical side greater emphasis than has been customary should be given to the problems of collecting data as distinct from the problem of manipulating data once collected. The course should acquaint students with available sources of economic data and with some of the important statistical studies in economics. To accomplish these objectives, at least a full year course would be required.

[7] For a discussion of the role of economic history see *The Tasks of Economic History*, Supplement VII, 1947, *The Journal of Economic History*.

In these suggestions, there is no implication that the entire core course in statistics should be given within the department of economics, though it might be. There is much to be said for a division of labor in which the statistical technique and logic are taught by professionally-trained statisticians, while the availability, meaning, and uses of statistical data in economics are taught by economists. Moreover, the latter might be taught either in connection with courses in various substantive fields or as a separate course.

History of Economic Thought

History of economic thought is a traditional core course at many institutions. It is required or usually elected by Ph.D. students at three-quarters of the reporting institutions and by master's candidates at more than a third of the reporting institutions (table 25). However, from conversations at many institutions, I have gained the impression that it has declined in popularity. This impression is partially confirmed in table 25 which shows that the percentage of professors who believe it should be in the core is considerably less than the percentage of institutions at which it is required or usually elected. That it has declined in popularity is due not to the opinion that it is not worthwhile, but to the fact that in competition with other new and more technical fields it is being partially displaced.

For two reasons, it should not be in the core for master's students: first, the inclusion of history of doctrine will prevent the master's candidate, in the limited time at his disposal, from getting acquainted with more essential fundamentals; second, considerable maturity and knowledge of economics—more than most first-year students have—is required for adequate comprehension or appreciation of the field. Therefore, it had best be left, in most cases, for advanced students.

On the other hand, I believe that it should be part of the core for doctoral students. It is one of the better vehicles for teaching economic theory, for giving perspective on current theories, and for giving insight into reciprocal relationships between ideas and events. The experimental attempts of several institutions to correlate history of economic thought and economic history is an interesting innovation which should be encouraged and observed closely.

History of economic thought is also a vehicle for introducing students to the world of scholarship which Professor Viner has described as "the pursuit of broad and exact knowledge of the history of the working of the human mind as revealed in written records."[8] Professor Viner

[8] Jacob Viner, "A Modest Proposal for Some Stress on Scholarship in Graduate Training," Address before the Graduate Convocation, Brown University, June 3, 1950, *Brown University Papers* XXIV, p. 1.

has proposed "that graduate schools make a place in their programs, a modest place, but one not confined to the Humanities departments, for scholarship, and that they require or at least plead with their students, especially those who are destined to be college teachers, to devote to that part of the graduate school program a fraction, a modest fraction, of their attention."[9] For economics this laudable suggestion can be implemented only by introducing students to the history of economic doctrine. Professor Viner's point is, of course, that the demands of technical professionalism should not be permitted to crowd out interest in scholarship. One might add that scholarship, in the sense of conversance with the history of ideas and their influence, may be one of the ingredients in the education of competent professionals in a field like economics.

Professor Viner is not alone in his concern for scholarship. In response to a question on this subject, two-thirds of the responding graduate professors indicated that they consider it a responsibility to kindle the interest of students in scholarship in the sense in which the term is used by Professor Viner.[10]

Research Methods

"Research Methods" is a course with which several institutions are experimenting and which some professors are advocating should be part of the common core. The objectives of such a course are : (1) to help students become acquainted with logic and scientific method, the nature of hypotheses, evidence, meaning, and objectivity; (2) to acquaint students with the several methods of research or of advancing knowledge in economics; (3) to acquaint them with some important examples of research in economics; (4) to stimulate their interest in research; and (5) to give them practice in research.

These are laudable objectives which every department should attempt to achieve. There is more than one way, however, of achieving them. Existing courses in theory, history, and statistics can be used if the professors in these courses are alert to the need and have reached an accord on a content including attention to research methods. Or, by common understanding, research methods can be handled in connection with one of these courses—perhaps the theory course or, preferably, the statistics course. Or research methods might be handled by tutorial work or seminars in connection with the writing of theses. At some institutions, excellent results have been obtained from courses on the philosophy of science given in the philosophy departments and attended

[9] *Ibid.*, p. 3.

[10] Schedule VII: 59 respondents.

by students from many disciplines. A final alternative is to institute a special course in research methods in economics. Various institutions may find different alternatives feasible. However, because existing courses in statistics, economic history, and theory are already bulging with essential substantive content, some institutions may well choose to establish a new course devoted entirely to research methods.

The objection is sometimes offered that courses in methods are likely to be sterile and uninspiring. There is some validity in this objection and this is a strong argument for handling instruction in method in connection with other courses. However, the course in method need not be devoid of content. The section on logic and the philosophy of science can be most challenging if handled astutely; the course can draw on many actual research investigations which can be considered both from the point of view of method and content; and if students are given research problems, either preparatory to their dissertations or otherwise, they can gain important experience.

Breadth and Specialization

In addition to the common core consisting of theory, economic history, history of economic thought, statistics, and research methods—which would be specifically required of all students—I have suggested (see table 28) that each student should present several special fields of economics. These would be selected from a fairly long list of recognized special areas, the list varying among institutions according to the staff and facilities available. Students would be permitted to present fields included in the core as special fields. To do this, they would undertake study beyond that expected of all students. For example, if a student should elect economic history as a special field, he would be examined along with other students on economic history considered as part of the core; then he would also be examined on the additional work he had done in economic history considered as one of his special fields. Each student would presumably consider one of the selected fields his major area of specialization and within it would choose the topic for his thesis or dissertation.

I have also suggested the requirement of a broad knowledge of fields of economics other than those included within the common core or the elected special fields. Doctoral candidates would be expected to have at least some knowledge of all fields of economics and of business administration, and master's candidates a general knowledge of at least three fields outside the core and the elected special fields. (Most master's candidates with undergraduate majors in economics would presumably have been able to meet this requirement in their undergraduate years.) Knowledge of these areas should be at least the equivalent of

that which could be obtained by reading standard elementary survey textbooks. The purpose of this requirement would be to insure that students would be aware of the major concepts, terminology, and issues covering a wide area. It is difficult to imagine that a Ph.D. in economics could be granted to a candidate who was unaware of the implications of such concepts as purchasing power parity, equity capital, depreciation, discount, non-competing groups, closed shop, current ratio, disposable income, bank credit, dollar shortage, agricultural parity, basing point pricing, classified property tax, last-in-first-out, etc. This kind of general knowledge constitutes literacy for the professional economist. Graduate students should also be expected to have a substantial background in fields outside economics. A master's candidate should be expected to have a background in science, humanities, and social science at least as broad as that of one who had completed undergraduate work in a good liberal arts college in the upper third of his class. A doctoral candidate should have intellectual breadth considerably beyond this standard. He should have the rich intellectual background of a highly-educated and cultured man.

I believe that a major portion of the profession generally agrees with these standards for breadth of background in economics and other fields. In response to questions regarding specialization in particular fields of economics at the expense of broader coverage and regarding specialization in economics to the exclusion of outside subjects, respondent professors indicated strong preference for breadth over narrow specialization. A large majority felt that it is a responsibility of their departments and their institutions to help graduate students become broadly educated and well-rounded human beings (table 29). Those who demurred from this position did so chiefly on the grounds that breadth should have been achieved in the undergraduate years, that the whole educational task cannot be done during the brief graduate years, and that sound training in the student's special field should not be sacrificed to the quest of "breadth."[11]

Despite the rather general approval of "breadth," I gained the distinct impression that few departments actually enforce requirements calling for breadth *within* economics; and even fewer require breadth of background *outside* economics. I believe that these requirements should be recognized more specifically and enforced by means of ex-

[11] An interesting and witty discussion of specialization and breadth is contained in a paper by Professor George J. Stigler: "Specialism: a Dissenting Opinion," *Bulletin of the American Association of University Professors*, Winter 1951-52, pp. 650-56. Professor Stigler's thesis is (p. 650) "that the worship of the cosmopolitan mind is romantic foolishness." He is inveighing, however, against those who never specialize and not against breadth of background from which to pursue one's specialty. In general I agree with his position which is not inconsistent with the recommendations made here.

TABLE 29.—ATTITUDES OF GRADUATE PROFESSORS TOWARD DEPARTMENTAL RESPONSIBILITY FOR BREADTH OF BACKGROUND

	Master's candidates[a]	Ph.D. candidates[b]
Responsibility to assist and encourage graduate students to become broadly educated in the sense of having an understanding and appreciation of history, politics, science, philosophy, literature, art, history of ideas, etc.:		
Yes	60%	61%
Qualified	2	7
No	38	24
No answer	—	8
Total	100	100
Responsibility to provide an environment that is conducive to the development of the "whole man" including social, cultural, and recreational interests as well as intellectual:		
Yes	63%	51%
Qualified	6	8
No	28	29
No answer	3	12
Total	100	100
Responsibility to help graduate students achieve some appreciation of interdisciplinary relationships among the social sciences:		
Yes	71%	85%
Qualified	2	5
No	14	5
No answer	13	5
Total	100	100

[a] Schedule IV: 61 respondents.
[b] Schedule VII: 59 respondents.

aminations. An urgent task for the profession is to define standards for appropriate general background within and beyond economics and to develop procedures for implementing these standards.

At the moment, the principal means by which attention is given to fields outside economics is through the so-called "minor." About one-third of the reporting institutions require minor fields for master's candidates, and three-quarters require them for doctoral candidates. Most institutions not requiring minors permit students to elect one or more minor fields. In more than a third of the institutions, however, special fields within economics or business administration may be counted as minors. And in fact about 60 percent of the 1951-52 graduate students and nearly half of the former graduate students responding to my questionnaires reported that their minors had been in economics

or business. Thus, the purpose of encouraging or requiring work outside economics is by no means always fulfilled.

The philosophy underlying the minor field as a part of a graduate students' program is entirely sound. There are many cases where the combined study of two fields is appropriate and fruitful. I doubt, however, if the requirement of a minor completely meets the need for breadth of background in fields outside economics. This involves the continuation and amplification of a liberal arts education covering many fields. I believe that the only satisfactory solution is to decide specifically on the degree of breadth desired and to enforce this standard by examining candidates for advanced degrees specifically on their intellectual breadth. In this way, they will have the incentive to become broadly-educated persons before they offer themselves as candidates.

Theory vs. Empiricism

In considering the content of graduate education in economics, I have tried to suggest courses and requirements which would achieve a fair balance between theoretical and empirical studies. In the core, for example, the former is represented by economic theory and the latter by statistics and economic history. And in considering special fields and general background, I have tried to achieve a balance between the theoretical and the empirical. As a result of observing departments of economics in action, however, I have concluded that this balance is an extremely subtle affair, and is not automatically achieved merely by arranging a suitable distribution of courses and fields. The problem lies deeper than that.

It is my impression—I have little documentation—that the graduate departments of economics at different universities are very uneven with respect to the relative emphasis on the theoretical and the empirical aspects of economics.[12] The atmosphere in some departments conveys

[12] In response to a question regarding relative emphasis upon economic theory and upon "studies relating to facts, institutions, and economic policy," the replies of respondent graduate professors with reference to the balance in their own institutions were as follows (data from Schedules IV and VII):

	For Master's candidates	For Ph.D. candidates
Satisfactory balance	50%	36%
Theory heavily stressed as it should be	10	17
Theory over-stressed	10	15
Facts, institutions, and economic policy over-stressed	6	10
Need for closer integration of theory and applied fields	2	3
Other	15	14
Uncertain	2	2
No answer	5	3
Total	100	100

to students the impression that theory is important and glorious, and that institutional or historical or statistical or socio-psychological studies are pedestrian and suitable only for second-rate minds. In these institutions, the staff consists mainly of theoreticians, and even the courses in the so-called applied fields tend to be highly suffused with theory. The students of such departments tend, I fear, to become relatively narrow theorists—much more narrow than their teachers. Other departments consist mainly of professors interested in the various applied fields. The spirit of such departments is on the whole anti- or a-theoretical; courses in theory are given, to be sure, but the study of theory tends to be perfunctory—a hurdle to be surmounted and left behind.

In most departments, even those in which theoretical and empirical interests are superficially well-balanced, I felt that far too little attention was given to empirical *research* of the kind that asks important basic questions (not necessarily pretentious or comprehensive questions), formulates hypotheses, and seeks answers through acquiring and analyzing data. The result, I think, is that we are failing to turn out any sizeable proportion of students who are thoroughly trained in, or *motivated toward*, empirical investigation using institutional, historical, statistical, or socio-psychological data. Most academic economists are inclined, I think, to pursue theoretical studies or to concern themselves with problems of public policy. Their theoretical interests tend toward fairly comprehensive subjects such as monetary theory, business cycles, employment theory, price theory, etc., and their policy interests are directed toward problems at the highest level such as inflation, unemployment, monopoly, or labor relations. There is relatively much less empirical work of a more modest sort calculated to test specific hypotheses. To illustrate, much more attention has been given to the development of comprehensive monetary theories or to the discussion of high-level monetary policy than to empirical investigations such as the effect of changes in the rate of interest on business investment. And more attention has been given to the broad theories of employment or discussion of economic stabilization policy than to empirical inquiries into problems such as factors influencing the form of the consumption function.

I hasten to state that I am in no sense launching an attack on theory nor am I objecting to the consideration of public policy by economists. Theory is of prime importance to the profession and to students, and I have given it a key position in the proposed substantive requirements for graduate students. Also, I believe that economists should devote themselves to the formulation and criticism of public policy. I am merely making a plea that more attention be given by academic econo-

mists and their students to the less spectacular but none the less urgent tasks of collecting and analyzing empirical data and testing specific hypotheses. Both the theory and the policy recommendations of economists would become more substantial if founded upon a larger and more reliable base of empirical verification.

How can interest in empirical research be fostered? The answer to this question is not easy, especially as the intellectual habits and traditions of a profession do not change readily. The answer lies partly, I think, in drawing to our departments of economics more intellectually vigorous economists with strong interests in empirical research. Many of these persons are now found in the Federal government or in various research institutions where they are not in contact with students. As things now stand, the balance of intellectual vigor and influence in many departments of economics is held by those whose major interests are theoretical. There is need for adding equally effective and persuasive persons whose bent is toward empirical research.

In addition to a diversified faculty, the achievement of a balance between the theoretical and the empirical requires that the two approaches be integrated in many of the graduate courses. Everyone knows that theoretical and empirical methods are complementary and equally indispensable in the advancement of knowledge. This complementarity should become evident in many parts of the curriculum. The lines separating the study of theory, statistics, history, and the so-called applied courses should be blurred. The contributions of the several methods and points of view should be merged. There is room in theory courses for reference to inductive materials. In statistics, the relations between the inductive and deductive methods should be continuously in the forefront. In economic history, both theory and statistics should have ample play. And in applied courses, like public finance, the menu should consist of judicious combinations of history, current facts, statistical analysis, and theory. The student should be spared the kind of compartmentalization in which he studies exclusively theory at 8:00 A.M., exclusively statistics at 10:00 A.M., solely economic history at 2:00 P.M., and only public finance at 4:00 P.M.

It is to be hoped that the diversification of faculty and the integration of method within individual courses may help to arrest tendencies for economists, and whole departments of economics, to become on the one hand radically theoretical and lost in an unreal world of logical deductions from over-simplified postulates, or on the other hand adrift in a chartless sea of unordered facts. It is to be hoped that they would gain the analytical powers and the sense of the interrelatedness of things which derive from the study of theory, but at the same time gain a respect for facts, a feeling for empirical research, an apprecia-

tion of the difficulties of applying theory to practical problems, and an understanding of the infinite complexities of the real world.

It was the problem of achieving greater emphasis on the empirical aspects of economics that led to my suggestion that economic history, statistics, and research methods be included along with economic theory in the common core for Ph.D. candidates. One might add, also, that to achieve the objective, the courses in economic history and statistics should be made more intellectually exciting and challenging than they have typically been in the past.

In discussing with graduate professors the problem of the relative emphasis on theoretical and empirical aspects of economics in graduate education, many agreed that a more equal balance is desirable, but questioned whether a practicable solution could easily be found. It was pointed out, quite rightly, that economic theory is the absolutely indispensable element in the education of economists. Nothing can be done without it. The problem, they pointed out, is whether anything significant can be done toward strengthening the empirical side without sacrificing theory. As one professor said, "Learning the requisite theory requires most of the student's time during his brief graduate period. We would be glad to introduce more institutional, historical, statistical, and socio-psychological materials and more research method. But to do so would cut squarely into the amount of time available for theory and prevent us from doing a good job in that most essential area. Moreover, we have fought for a long time to gain an adequate place in the curriculum, and in the interests of students, for theory, and we should hesitate to retreat just as victory is ours. The only solution would seem to be to lengthen the graduate period, but no one is enthusiastic about that. Therefore, the only solution would seem to be to make the best of a bad situation and to continue the emphasis on theory." I do not agree that this is an insoluble dilemma; I think, however, that it is a difficult problem, and that many departments should carefully consider the relationship between the theoretical and the empirical in their educational programs, and should plan their future staff and curricula with a view to redressing any imbalance that is found.

Chapter 8

RESEARCH TOOLS AND VERBAL SKILLS

In the discussion of "objectives and standards" (chapter 4), it was assumed that the important tools of research in economics include foreign languages, mathematics, law, accountancy, socio-psychological techniques, historical techniques, and possibly others.[1] It was proposed

TABLE 30.—SUGGESTED REQUIREMENTS IN RESEARCH TOOLS AND VERBAL SKILLS FOR GRADUATE STUDENTS IN ECONOMICS[a]

	For Ph.D. candidates	For master's candidates
Research tools (foreign languages, mathematics, law, accountancy, socio-psychological techniques, historical techniques, etc.)	Ability to use one tool with high proficiency; understanding of the use of other tools	None
Verbal skills:		
Reading	Ability to read economic literature in common core and selected special fields except that involving unusual technical apparatus	Ability to read any of the easier literature in the common core and special fields
Writing[b]	Ability to write, for technically-trained or lay readers, brief or extended discourses	Ability to write brief or fairly extended discourses in special field
Speaking[b]	Ability to speak or discuss clearly and coherently before a class, seminar, public audience, or committee	Ability to present an economic subject before a class or small group and to explain a point in informal discussion

[a] See pp. 44–7, 61–2.

[b] The skills of writing and speaking are to be considered jointly; deficiency in one may be offset by excellence in the other. No candidate is to receive degree who is sub-standard in both.

(see pp. 44-5) (1) that each doctoral candidate should have a sufficient knowledge of all these tools to understand how each may be employed in economic research and to apppreciate the various ways in which knowledge of economics is advanced; and (2) that each doctoral candi-

[1] Statistics, research methods, and logic and scientific method—often considered under the heading of research tools—are not included in this list. They are considered part of the common core which was discussed in the preceding chapter.

date should be expected to achieve a genuine mastery of at least one of these research tools.[2] It was also suggested (pp. 45-7) that high levels of performance should be required of doctoral candidates in reading and in writing *or* speaking. Corresponding but less rigorous standards of proficiency in the verbal skills were recommended for master's candidates (pp. 61-2). These suggested requirements are summarized in table 30. In the remainder of this chapter, I shall discuss each of these suggested requirements.

Foreign Languages

Perhaps the most widely-discussed and controversial of the research tools are foreign languages. A foreign language requirement for master's candidates in economics is in force at 42 of 87 institutions for which data are available. Of these, 39 require proficiency in one—usually French or German, and 3 require 2 languages. In a few institutions the requirement applies only to certain students or it can be satisfied if the student has completed 2 years of undergraduate work in a language. Of 52 reporting institutions, all except two impose a foreign language requirement for doctoral candidates. The two exceptions employ a general "tool" requirement which *may* be satisfied by passing a foreign language examination. The following are the specific requirements in effect and the percentage of the 52 reporting institutions employing each:

Reading knowledge of two languages (usually French and German)	75%
Facility with one language or a dictionary knowledge of two	2
Reading knowledge of two languages or reading knowledge of one and knowledge of a tool subject	19
One language and mathematics	2
General tool requirement, language may be used to fulfill	2
Total	100

In the large majority of institutions, the doctoral student must satisfy the language requirement before he takes the preliminary examination or before he is admitted to formal candidacy for the degree. In most institutions, the department of economics has no part in the administration of the examinations. This is usually done by the modern language departments under the supervision of the graduate college. Six institutions indicated, however, that the department of economics selects foreign language materials for the examinations and two that the department administers the examinations "with considerable charity."

The opinions of professors about the foreign language requirements

[2] I suggested that there should be no corresponding requirement for master's candidates.

are mixed but predominantly unfavorable. On the question of whether a reading knowledge of at least one foreign language should be required of master's candidates in economics, the replies were as follows:[3]

Yes for all students	18%
Yes for some students	25
No	46
Uncertain	8
No answer	3
Total	100

Some of those favorable to the requirement commented that the study of foreign languages helps the student to master English or contributes to his general culture. Those who thought the requirement should be limited to "some students" indicated that they were thinking of students whose research or career interests will be advanced thereby, or who were expecting to proceed toward the Ph.D. They were thinking, in other words, that some students ought to have language skills, but that it should not be required of all students. Significantly, no respondent commented specifically that a foreign language should be required of all master's candidates because of its general usefulness to economists.

When heads of departments were asked if their doctoral candidates "obtain sufficient proficiency in the foreign languages to be able to use them effectively in research and study," 60 per cent said "no," and another 8 per cent were uncertain or equivocal. On the other hand, nearly a third responded affirmatively.[4]

Opinions of graduate professors as to what should be done about the foreign language requirement for doctoral candidates were highly mixed. The wide disparity of opinion on the subject probably explains the delay of reform when so many are dissatisfied with the *status quo*. Recommendations on the foreign language requirement for doctoral students are presented in table 31.

A third of the graduate professors favor retention of two languages—though few insist that these languages should be exclusively French and German. Two-thirds would depart from the traditional two languages; 18 percent would continue the requirement of two languages but with provision for the substitution of a "tool" for one of the languages; 5 percent would require the substitution of mathematics or statistics; and the remainder (37 percent) would reduce the requirement to one language or eliminate it altogether.

Apparently there is considerable dissatisfaction among graduate professors regarding the administration of the foreign language requirements. Whereas only a negligible number of economics departments

[3] Schedule IV: 61 respondents.
[4] Schedule V: 27 respondents.

TABLE 31.—RECOMMENDATIONS OF GRADUATE PROFESSORS ON THE FOREIGN LANGUAGE REQUIREMENT FOR DOCTORAL CANDIDATES IN ECONOMICS[a]

Require two languages:	
French and German, no substitutes	4%
French and German but with various amounts of latitude and substitution of other languages	18
French and German or other two languages, stiffen examinations	11
Sub-total	33
Require two languages, but with provision for substitution of other tools for one language:	
Permit substitution of mathematics	11
Permit substitution of a "tool"	7
Sub-total	18
Require one language and mathematics or statistics	5
Require only one language:	
One language, stiffen requirements	12
One language, no change in rigor of requirement	2
Mastery of one language or dictionary knowledge of two	2
Sub-total	16
Eliminate language requirement:	
Eliminate it altogether	4
Eliminate except for students who need foreign language for their research or career plans	13
Eliminate, substitute mathematics or statistics	4
Sub-total	21
No answer	7
Grand total	100

[a] Schedule VII: 59 respondents.

now administer these examinations, there is considerable sentiment in favor of greater departmental responsibility in this field. This opinion is based in part on the feeling that linguistic needs in economics differ from those in other fields and that the department should have a greater voice in the standards and the conduct of the examinations. In response to a question regarding differences in the linguistic needs of graduate students in economics as compared with those of other students, nearly three-fourths of the professors responding thought there are significant differences. Some thought the needs of economics students are less rigorous than those of other fields, others commented that language requirements should be closely related to the students' interests

and objectives. A few suggested that the economist's language needs are related more largely to the acquisition of data from original sources than to contact with the scientific literature of other countries, whereas the examinations and standards are set mainly with the latter objective in mind. Few professors indicated, however, that they regarded the foreign language problem as a serious one, and few of those who favor changes base their position on the ground that the language requirement represents a significant hurdle which interferes with scholastic progress and professional development of graduate students. Many said, however, that the problem would be serious if the requirements were not laxly administered.

When asked about the frequent suggestion that the foreign languages should be used in connection with assignments for courses and seminars, the professors were again divided. About half were favorable or mildly favorable, about a third unfavorable, and the remainder neutral or uncertain. In considering the responses to this question, I wondered what percentage of the respondent professors would themselves be able to do assignments in a foreign language. However, some modest efforts to integrate the foreign languages with economic study is made in about a third of the reporting institutions.

TABLE 32.—OPINIONS OF GRADUATE STUDENTS REGARDING FOREIGN LANGUAGE REQUIREMENTS

	Advanced graduate students in residence in 1951–52[a]	Former graduate students who received Ph.D.'s in 1939–40 or 1949–50[b]
Beneficial	19%	21%
Possibly of some benefit	15	13
Of no benefit	64	62
No answer	2	4
	100	100

[a] Schedule IX: 81 respondents.
[b] Schedule X: 164 respondents.

Present and former doctoral students are less favorable to the language requirements than their professors (see table 32). Only about one-fifth of them feel that the meeting of these requirements was beneficial to them and nearly two-thirds said flatly that they got no benefit from the ordeal.

The only possible generalizations regarding opinion among economists on the language requirements are (1) that there is widespread

(though not unanimous) dissatisfaction with present practice, and (2) that there are many proposals for reform. On a subject so controversial and on which opinion is so scattered, recommendations in a report of this kind cannot be presented with the weight of any solid block of opinion behind them. They can have status only as one man's opinions. Nevertheless, for what it may be worth, I shall present those opinions. Most of the discussion will refer to the language requirements for doctoral candidates.

In general, the arguments of those economists who are in favor of the traditional language requirements for doctoral students are: (1) that economists would have contact with foreign literature; (2) that they should have access to foreign sources of data; (3) that the study of foreign languages helps to improve the student's command of English, contributes to his general culture, and helps to overcome provincialism; (4) that the prospective world leadership of America makes it incumbent upon us to have economists who know foreign languages.

Anyone can agree with all of these arguments, as I do. But the issue is whether these objectives can be achieved sufficiently by means of the traditional type of foreign language requirement to justify imposing this requirement on all doctoral students. I feel strongly that the traditional language requirement does not accomplish any of these objectives to an appreciable degree, and that there is little justification for it. By meeting that requirement most students do not gain useful access to foreign literature or foreign sources of data, their command of English is not appreciably strengthened, their general culture and breadth of perspective is not widened as much as it might be by the expenditure of equal effort in other directions, and most of them do not in this way become capable of assisting in the discharge of America's international responsibilities. In short, the traditional system represents little more than an irritating and meaningless hurdle which interrupts a student's work just at the time when he is most strongly motivated toward his field. Moreover, it is damaging to the morale of graduate students to impose upon them an onerous requirement the value of which cannot be adequately defended, and which many professors quite openly scoff at.[5]

Most economists do not rely heavily on foreign literature. They find

[5] The attitude toward the traditional requirement is apparently much more favorable among graduate faculties in the natural sciences, linguistics, history, and humanities than it is among social scientists. Hence, in almost all graduate colleges, change is resisted. The reasons for the more favorable attitudes of those in linguistics, history, and humanities are obvious. The natural scientists find the languages valuable because much important scientific literature is available in German, French, and Russian. This literature can be translated with relative ease because nomenclature and symbolisms are often standardized and because scientific papers are characteristically brief.

the foreign literature lengthy and extremely difficult to translate. Some economists need foreign languages for access to sources of data such as foreign documents, periodicals, bank reports, etc. But this need is restricted to a small minority, and is by no means common to the entire profession. Therefore, economists as a group are less enthusiastic toward the universal language requirements than their colleagues in many other fields. But because they and other likeminded professional groups are in the minority, and because of general academic conservatism, the foreign language requirements are likely to remain at many institutions, in something like their present form, for years to come. Hence, a few rather obvious recommendations for operation within the present framework may be in order.

First, every encouragement should be given to students to meet the requirements early in their careers and, if possible, to prepare for their language examinations before entering graduate study.[6]

Second, departments of economics should take some interest in the foreign languages, help students prepare, stimulate their interest in achieving enough mastery of languages to be able to use them, and draw foreign language materials into courses and seminars. If students are to be required to meet the language requirements, departments should help to make them as meaningful and as agreeable as possible, rather than leaving the student to meet—entirely on his own devices and without encouragement—a requirement which many of his professors openly regard as futile.[7]

Third, strong efforts should be made to alleviate the burdens of foreign students who come to this country with the intention of studying economics, but find that much of their time is demanded by the study of French and German at a time when they have not even conquered English. At the very least, such students should be permitted to offer English as one of their foreign languages.

Fourth, as much as possible should be done within the conservative framework of graduate college rules to permit greater latitude in the choice of languages offered to satisfy the requirement. Merely on grounds of availability of an important literature, Russian, Italian, and any of the Scandinavian languages can be defended as substitutes for French or German. And on grounds of availability of source materials for the study of regional developments, international economics, etc., any literary language in the world might appropriately be chosen.

[6] Cf. Carl C. Brigham, *Examining Fellowship Applicants*, Social Science Research Council, Bulletin No. 23. p. 23. Dr. Brigham points out the futility of awarding fellowships and scholarships to graduate students who will have to spend much of their time in satisfying language requirements.

[7] Cf. "Report of Subcommittee on Language Requirements," *Report of Fourth Annual Meeting of the New England Conference on Graduate Education*, 1947.

Along this line, some institutions have fallen into the curious habit of assuming that if a student asks to substitute, in place of French or German, a language he happens to have studied, he is *prima facie* trying "to get away with something." Thus, in some institutions, Spanish may be substituted for French only if the student has *not* studied Spanish before. If he has studied Spanish, then he must be examined in French. This kind of attitude toward the languages is clearly nonsensical.

Fifth, if language requirements are to be retained, departments of economics should use their influence to stiffen the requirements so that students will acquire at least some useable linguistic skill. In many institutions, the requirements while consistently retained are at standards so low that the student has virtually nothing to show for his efforts. It would seem that if the task is to be done at all, it should be done well enough to produce a tangible benefit for the student.

But it is to be fervently hoped that present requirements can be modified. The alternatives, listed in an *ascending* order of preference are as follows:

I. Various arrangements involving two foreign languages with low standards such as now generally prevail and with various provisions for substitution (essentially the present system in most institutions)
   1. French and German, no substitutions
   2. French and German, with possibility of substituting another language for one of these
   3. French and German, with possibility of substituting other languages for either or both
   4. Two languages with possibility of substituting one research tool
   5. Two languages with possibility of substituting one research tool or one collateral field
   6. Two languages with possibility of substituting one collateral field
   7. Two research tools of which foreign language may be one or both

II. No requirement whatever

III. Any of the arrangements under I above but with exacting standards such that the language or tool or collateral field will become an important useable asset for the student.

IV. Various arrangements involving one foreign language, one research tool or one collateral field with exacting standards such that student will gain an important useable asset.

1. One collateral field
2. French or German
3. One foreign language to be chosen from any literary language in the world—the choice to be made in terms of the students' research interests and plans
4. One foreign language, other research tool, or collateral field
5. One foreign language or other research tool

This list does not, of course, cover all the possibilities, but it does indicate the range. The reader can easily fit other alternatives into the pattern. In general, the reasoning underlying the order of preference is this: the requirement of two languages or other subjects with the low standards that have become customary is worse than no requirement whatever. If we are to have such a requirement, as I think we should, then let us impose exacting standards so that it will result in tangible accomplishment for the student. But if we impose exacting standards for *two* subjects, this becomes more than the student can do and still meet the other essential demands on his time and energy. Therefore, the best solution is to require one subject with exacting standards. Of the subjects from which to choose, I recommend that they include any literary foreign language or any other important research tool. Among these other tools I should include mathematics, law, accountancy, socio-psychological techniques, and historical techniques.[8] I do not favor the inclusion of a collateral field such as sociology, political science, industrial management or anthropology, unless it can clearly be defended on the ground that it contributes to the student's *research* equipment. I feel that the requirement should be designed specifically to sharpen the student's research ability and proficiency, and should not be merely another minor field. In line with this thinking, I should recommend that the student always be required to defend his choice of a subject in terms of his research interests and plans.

These recommendations are based upon three general principles: (1) that whatever subject a student may elect or be called upon to offer, an exacting standard should be imposed such that when he has met the

[8] A few graduate departments of economics now require a rudimentary knowledge of accounting concepts. I concur in this requirement and have suggested that it be included in the admission requirements along with elementary mathematics (see p. 88) rather than in the degree requirements. In response to a question as to whether proficiency in tool subjects other than foreign languages should be required for advanced degrees, about two-thirds of the respondent professors mentioned mathematics, one-fourth mentioned accounting, one-fifth mentioned logic and scientific method, and a handful mentioned library techniques. Many thought of these, however, as substitutes for, rather than additions to, the foreign language requirements. At least one university has experimented with a special graduate course in accountancy designed expressly for students in economics. Another has experimented with a non-credit course in the use of the library and sources of data.

standard he will have a viable intellectual asset, (2) that the requirement should be oriented toward research and should quite specifically increase the student's research capacities, and (3) that the requirement should result in the production of a generation of economists having diverse research skills—some in mathematics, some in each of many foreign languages, some in historical research, etc.

When the term "exacting standards" is used, I have in mind, for example, that the student who offers a foreign language would be able to read any literature in the language with such facility and speed that it would be feasible for him to read technical books, government reports, and newspapers in the language. If he offered mathematics, he should be able to read the literature of mathematical economics and statistics with facility.

To meet this standard in only one field would probably involve more work than most students now devote to the foreign languages. In general, on the basis of numerous inquiries but no formal survey, I would guess that to meet the present low-standard requirements of French and German requires of most students the equivalent of perhaps 3 to 6 months of full-time work, the amount depending on the student's linguistic background and facility. This is probably insufficient time for achieving any worthwhile results from the requirement. I should think that standards might be thought of in terms of at least 6 months of full-time work—preferably more. If the student is permitted to invest this time in a subject which he feels of value, the resistance to the meeting of this requirement would be less than that now encountered with the present foreign language requirements which are often considered useless. In considering the amount of time required, it should be remembered that it is possible for students to prepare for these requirements during undergradaute years or before entering graduate study, so that ideally no time need be taken from graduate study in order to meet the requirement. Indeed, the profession should work unremittingly to encourage prospective students to prepare in the tool subjects before entering graduate study.

It is sometimes objected that a plan under which the student may elect a substitute for the foreign languages will result in the latter being squeezed out altogether. Whether this will be true will depend, of course, on the relative difficulty of the various alternative requirements and on the kind of advice students receive. Data based on experience at the University of Minnesota suggest that the languages do not necessarily disappear when other options are available. During the period from 1949 to 1951, 71 percent of the Ph.D. candidates at that institution (in all fields) had the option, in place of one of their language examinations, of presenting a research technique or a collateral

field. Yet only 24 percent of the candidates exercised this option.[9] The remaining 76 percent offered the customary two languages.

The above discussion has related exclusively to the language requirements for the doctorate. For the master's degree, I see no compelling arguments for requiring a foreign language or research tool (other than statistics which is considered under the common core). Much more important for master's candidates is to achieve a thorough grounding in economic theory and other fundamentals.

Mathematics

The increasing utilization of mathematics by economists has led to great interest in the inclusion of mathematics as one of the tools which graduate students should be required or advised to acquire. Already nearly a fourth of the reporting institutions permit doctoral candidates to substitute mathematics for one of the foreign languages (see p. 125), and several others impose mathematics requirements (usually "through calculus") in addition to the foreign language requirements. Many professors have indicated their concern about the problem of mathematics training and many departments are considering the requirement of mathematics in some form.

About two-thirds of the respondent graduate professors think that mathematics should be included as a requirement for the Ph.D. Most of these hold that this should be as a substitute for, rather than addition to, a foreign language requirement. Also about two-thirds of the respondent graduate professors think that mathematics should be required "for some or all" master's students.[10] In reply to a question about the present ability of doctoral candidates to use mathematics for economic analysis, the graduate professors responded as follows:[11]

Good	2%
Fair	41
Poor	44
Uncertain	7
No answer	6
Total	100

To stimulate improvement in the mathematical skills of doctoral candidates, the respondent professors suggested that students be encouraged or required to take courses in mathematics, that examinations analogous to the foreign language examinations be given, that admis-

[9] University of Minnesota, *Graduate Faculty News Letter*, Dec. 10, 1951, p. 4. Among the research techniques and collateral fields presented were: mathematics, statistics, accounting, public opinion analysis, research methods in business analysis, methods in higher education, surgical technique, and experimental psychology.

[10] Schedule VII: 59 respondents.

[11] *Ibid.*

sion requirements include mathematics, or that key economics courses be pitched at a level that would require mathematics as a prerequisite. The great majority were opposed, however, to giving graduate credit for elementary courses in mathematics or other tool subjects.

Many present and former graduate students also indicated concern about mathematics. When asked about inadequacies in their earlier training, or in their graduate programs, more mentioned mathematics than any other subject.

My conversations with professors and graduate students indicated an unmistakable and profound interest in the problem of mathematics for economists. At the same time, there is great perplexity as to how to solve the problem, and rather general groping toward solutions. The difficulty, of course, is that there are no *easy* solutions. The effort to enforce standards of mathematical proficiency which many members of the profession believe are demanded by current developments in economics would add an onerous burden for both students and faculty—a burden so onerous that few have the courage to insist on it.

Opinions on the place of mathematics range from the view that it is unnecessary (and that those who use it in economic analysis are arrogant pretenders) to the view that every economist should be a thoroughly trained mathematician. Fortunately, a committee on the Mathematical Training of Social Scientists, including representatives from the interested professional associations, has been at work; also the Social Science Research Council has sponsored a committee to survey the role and uses of mathematics in various social science disciplines.[12] It is to be expected that the deliberations of these two groups will bring forth useful information and suggestions. My comments on the problem in advance of the reports of these committees may be little more than a useless act of supererogation.

My first assumption is that mathematics is a highly important and useful tool in economics both for economic analysis and for statistics, and that the problem of mathematical training is a serious one for which satisfactory answers are urgently needed. As the discipline is developing, and is almost certain to develop in the future, the demands for mathematical training will surely expand. It is not difficult to imagine that the relation of mathematics to economics may some day resemble that between mathematics and physics or engineering. This possibility is presaged not alone by developments in economics but also by the even more rapid and revolutionary developments in statistics.

[12] I am indebted to Professor William G. Madow, Professor of Mathematics at the University of Illinois, a member of these committees, for many suggestions. He should not, however, be held responsible for any of the conclusions or recommendations which follow.

At the present stage of the discipline, mathematical ability is needed by economists at three levels. First a few economists, but a steadily increasing number, should have a command of mathematical skills at the most stratospheric level. These people would be depended upon to develop the areas of mathematical economics, econometrics, and statistics. They would be qualified both to read the literature of these fields, to formulate problems for solution in mathematical terms, and to solve these problems. I shall call these *mathematical economists.* Second, a larger number of economists, whom I shall call *mathematical readers,*[13] should be able to read with comprehension a substantial portion of the mathematical and statistical literature, for example, *Econometrica,* the more abstract articles in the *Journal of the American Statistical Association,* or books in which ideas are presented in mathematical form such as Leontief, *Structure of American Industry;* Marshall, *Principles of Economics* (appendix); Samuelson, *Foundations of Economic Analysis.* Some of these mathematical readers, it would be hoped, might be able to set up problems so that a mathematical economist could translate them into mathematical form and solve them—in other words, to be able to use the services of mathematical economists intelligently and effectively.[14] Third, most economists (I should be willing to say *all* economists) should have a sufficient orientation in mathematical ideas, symbols, and mode of thought to make economic theory and statistics more intelligible and to permit them to read easily, with comprehension, and without "formula fright" books such as Stigler, *Theory of Price* and Boulding, *Economic Analysis* (Part IV). They should understand such simple ideas of algebra, geometry, and calculus as variable, function, equation, simultaneous equations, differential, integral, limit, vector, tangent, logarithm,

[13] The Social Science Research Council, in sponsoring its 1953 Summer Institute in Mathematics for Social Scientists, gave as the objectives of the Institute: "to equip students to (a) formulate social science problems in mathematical form, (b) read mathematical literature in their chosen fields, and (c) do further work in mathematics and statistics beyond the level of the calculus if they find need for this in connection with their work in social science."

[14] A critic writes: "You mention a second category of economists termed *mathematical readers.* I think you are a little too modest in your estimate of their abilities and creativeness in formulating economic problems mathematically. Many of the great figures in the history of mathematical economics have themselves probably fallen into this category as far as training is concerned. Jevons and Walras are two names that come to mind but one could enlarge the list. Such people make no pretense at being fully trained mathematicians, but having real abilities in the field of economic analysis and logico-mathematical thinking they are able to puzzle and puzzle and finally state in terms of mathematics their economic theories. I am sure that many in this category will turn out to be more fruitful workers than undergraduates who have concentrated in mathematics and who have been persuaded to go into the field of economics. Incidentally, you will inevitably find that the very best undergraduate mathematicians will not be the ones who gradually transfer into the fields of statistics and economics, I fear."

matrix, etc. To be sure, these concepts and ideas can be understood without reference to mathematical symbolism or manipulations, but they are much more clearly understood with a modicum of training and experience. Economics and statistics involve so largely the manipulation of quantitative variables and rely so heavily on algebraic and geometric formulations that it borders on stupidity for anyone to undertake serious study of economics at the graduate level without the kind of elementary mathematical background indicated. I shall now comment briefly on each of these three groups of economists as classified according to degree of proficiency in mathematics.

The principal problem with reference to the "mathematical economists" (those with a very high level of proficiency in mathematics), is to insure either that a substantial number of economists will be induced to acquire a high level of mathematical skills, or that a substantial number of persons with highly developed mathematical skills will be pursuaded to apply their knowledge to economics. If this does not happen, economics will almost surely lag behind other disciplines. It is difficult to induce economists to acquire a high order of mathematical skill. Few students of economics acquire a substantial mathematical background in their undergraduate years. By the time they reach graduate school and recognize the need and the opportunity, it is usually too late for them to afford the time and energy necessary to become proficient in mathematics—particularly in view of the fact that years of work are involved for which no graduate credit can be earned.[15] This brings us back to the trite, but nevertheless sound, proposal that more students should have substantial mathematical training as undergraduates and, in order to accomplish this, that more should begin mathematics early in their undergraduate careers. This raises a host of problems as to how to increase the number of students who come to graduate work with adequate prior preparation.

Another suggestion is to encourage students with substantial undergraduate work in mathematics to enter graduate study in economics.[16] There are beginnings of developments along this line. Mathematics departments are beginning to recognize more fully their relation to and responsibility toward the social sciences, and in some institutions are attempting to work more closely with the social sciences. I believe that economics departments might well take the initiative in developing closer liaison with mathematics departments (and possibly also with

[15] Cf. Paul A. Samuelson, "Economic Theory and Mathematics—an Appraisal," *American Economic Review* (supplement), May 1952, pp. 56-66.

[16] Of the group of 358 present and former graduate students responding to my questionnaires, 11, or 3 percent, indicated that their undergraduate major had been in mathematics or engineering. Some others no doubt had had considerable work in mathematics.

engineering colleges) to pave the way for an increasing flow of students with mathematical training into economics. Students with mathematical training should, however, be urged to enter economics only in those economics departments where the staff includes economists and statisticians with thorough mathematical training. These staff members are needed if the student is to learn how to combine mathematics and economics fruitfully.

My suggestions regarding the foreign languages and other research tools (see pp. 131-3) were intended to help in producing a larger flow of "mathematical readers." According to this suggestion, students would be permitted to elect mathematics as their research tool. If they did so, they would be expected to achieve a degree of proficiency such that they could read readily and with comprehension, the *Journal of the American Statistical Association, Econometrica,* and other mathematical literature. This is no mean requirement. To achieve this would involve at least as much effort as to attain the suggested standard in a foreign language. (Indeed, one of the obstacles to the election of mathematics as a tool subject might be its difficulty as compared with a foreign language or other tool.) As indicated, it would be expected that some of the students achieving a genuine reading knowledge of mathematics might in addition be able to formulate problems so that more highly-trained mathematicians could set them up and solve them. It would even be hoped that a few of the "mathematical readers" would themselves develop some ability in setting up problems in mathematical form or in solving them. On the other hand, students who had met the suggested requirement would have much broader and deeper mathematical training than the "math through calculus" which many are thinking of when they propose the substitution of mathematics for one of the required foreign languages.[17]

While it is desirable to increase the flow of mathematical economists and mathematical readers, it is surely not necessary—at least at this stage in the development of the discipline—that every economist should have mathematical training at either of these levels. A case can be made, however, for requiring all to have an understanding of basic mathematical ideas as a background for the ideas and logical processes underlying both economic theory and statistics.[18] This requirement could

[17] It is possible that all students offering economic theory or statistics as their major fields for the doctorate should become "mathematical readers."

[18] Dr. Carl C. Brigham in his 1935 study *Examining Fellowship Applicants* (Social Science Research Council, Bulletin No. 23) stated (p. 35): "It is hard to reconcile this rather general mathematical deficiency with notions of the nature of social science. Certain fields of economics, politics, psychology, and other social sciences are developing very rapidly in mathematical directions. Disregarding entirely the possibility of individual contributions to the development of new techniques, it is difficult to see how a person who has forgotten

be handled in at least three ways: (1) as an admission requirement, (2) as a prerequisite to the courses in statistics and/or theory, or (3) as a requirement to be met at some time in the graduate period. I strongly prefer the first of these alternatives. I believe that the profession cannot reasonably delay much longer in requiring for admission to graduate study a knowledge of elementary mathematical concepts. As a corollary to this, the graduate courses in statistics and theory should be pitched at a level which would require this knowledge as a prerequisite. At least during the transitional period when this requirement is being established, each graduate department should offer a course, without credit, in which the student might acquire the desired mathematical background without having to traverse the lengthy sequence of traditional and partially irrelevant elementary courses given in mathematics departments.[19] At several institutions, such courses have been or are being offered. On the whole when they have been well-taught and supported by the faculty, the response of students has been encouraging. At some institutions, the student response has been so great that there is some question as to whether it would not do more harm than good to impose a mathematics requirement. Graduate students can be made keenly aware of their mathematical needs and deficiencies and can be persuaded to do something about them voluntarily.

Verbal Communication

A frequent complaint against graduate students in economics is their alleged mediocrity in the use of written and spoken English.[20] Employers often refer to this defect, a surprising number of present and former graduate students speak regretfully of their lack of competence in the communication skills, and a large majority of graduate professors have complaints on this score. Table 33 presents a summary of

elementary algebra can even become *well read* in the field of social science. The committee is of the opinion that elementary mathematical tests should be given to all applicants and that the weight given to their scores on such tests should depend on their proposed programs of study. To attempt to turn more mathematically illiterate scholars into fields already overcrowded with intellects of similar constitution does not appear to be a profitable venture. With respect to the fundamentals of foreign languages and mathematics, the committee cannot afford to send their first-year fellows on to graduate schools in the plight of the *Puck* or *Punch* plumber who has to go back for his tools."

[19] Some mathematics departments are developing elementary semester or year courses which would serve this purpose very well. One of the courses most frequently mentioned in this connection is that given in the College at the University of Chicago. The textbook for this course is: E. P. Northrop and others, *Fundamental Mathematics* (3 volumes), 3 ed. University of Chicago Press, Chicago, 1949.

[20] In this discussion, I am not including ability to read economic literature, even though this was included as one of the required verbal skills (table 30). The reason for this omission is that ability to read is the one ability which is thoroughly tested under existing practices.

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TABLE 33.—OPINIONS OF GRADUATE PROFESSORS REGARDING STUDENTS' ABILITIES IN VERBAL COMMUNICATIONS

	Master's candidates[a]		Ph.D. candidates[b]	
	Ability to write	Ability to speak	Ability to write	Ability to speak
Good	16%	20%	14%	19%
Fair	61	66	51	63
Poor	20	11	22	12
No answer	3	3	13	6
Total	100	100	100	100

[a] Schedule IV: 61 respondents.
[b] Schedule VII: 59 respondents.

the opinions of graduate professors on the writing and speaking abilities of their students. As shown in the table, about three-fourths of the responding professors thought that the ability of students to write and to speak is below par. When asked what ought to be done to overcome the deficiency, graduate professors responded with a variety of proposals as follows (the percentage refers to the relative number of professors mentioning each proposal):

1. More emphasis on written and oral reports, on essay and oral examinations, and on organized discussion and seminars 26%
2. Remedial clinics, special courses, or other special remedial measures 13
3. Encouraging students, through informal counselling, to improve their writing and speaking 11
4. Appraisal of students' work partly on the basis of oral or written presentation 7

A third of the respondent professors thought, however, that the problem should be handled at lower educational levels, and not in graduate school. This position presumably implies that proficiency in writing and speaking should be required for admission to graduate study, and that therefore these skills should not be a special concern of graduate faculties.

My own judgment is that the communications skills are of utmost importance to future economists, and that it is incumbent upon graduate faculties to give careful attention to the development of these skills. This job might be done partly through requiring a minimal standard of competence, in writing at least, for admissions. For example, admissions officers might examine some of the prospective graduate students' written work. If entrance examinations are given, the students' writing ability could easily be tested. But even if entrance requirements of this kind were imposed, it would still be desirable to develop further the students' skills during his graduate years.

In my conversations with graduate professors and students, I gained the distinct impression that a great deal of graduate study takes the form of reading and lecture courses in which students occupy relatively passive and absorptive roles as readers and listeners rather than active and creative roles as researchers, writers, speakers, and discussants. This was true even in many so-called seminars. While I would not go to the extreme of arguing that there is no place in graduate instruction for the lecture or for systematic assigned reading, yet I feel that true graduate instruction demands of the student a great deal of the active and creative pursuits I have mentioned. My first recommendation, then, is that steps be taken to insure that all graduate students have many opportunities for the active and creative type of educational experience. I believe that most departments would be well advised to appraise their graduate programs from this point of view.

Second, I have recommended that a thesis, or its equivalent, be required of all candidates for the master's degree. One of the strongest arguments for the thesis is that it provides the student with a rigorous test of his literary skill. The formalities surrounding the thesis provide strong incentives for him to do his best work, and from the individual guidance of his professor he should receive many helpful suggestions regarding writing.[21]

Third, all written and oral work of students should be graded partly on the basis of the quality of presentation.

Fourth, greater attention should be given to opportunities for genuine discussion of economic subjects among students and between faculty and students. In one university after another I was impressed by the apparent lack of vigorous intellectual discussion among students. Admittedly, for a variety of reasons, discussion is more difficult today than it was 15 or 20 years ago. But this does not eliminate the need for training students in the art of expressing themselves informally on economic subjects. The present situation calls for conscious efforts on the part of the faculty to provide opportunities and stimulus for greater and more frequent student discussion.

Finally, fifth, the experience of graduate students as research and teaching assistants can be helpful from the point of view of developing skill in the art of communication. This leads us, however, to the subject of the next two chapters.

[21] In order to give students practice in writing for lay audiences, a science department in one university has required each of its students to rewrite his dissertation in the form of an article suitable for publication in a popular periodical.

Chapter 9

RESEARCH TRAINING

In Chapter 4, I suggested that competence in research should be one of the objectives of graduate education in economics. With reference to the master's degree, I proposed that a candidate should be able to carry on limited research projects under general supervision, or to serve as a useful research assistant under the detailed supervision of a mature research worker. Similarly, with reference to the Ph.D., I suggested that a candidate should be able to assume considerable responsibility as a research worker both in the theoretical analysis of problems and in the carrying out of operations to test the hypotheses suggested by theory.[1]

Competence in research is not the sole objective of graduate education. It is an important objective in the master's program and a leading—perhaps major—objective in the doctoral program. That training in research is an essential ingredient of graduate education can be defended on two grounds: (1) that it is good to produce a flow of economists who are equipped and motivated to engage in research at various levels, and (2) because experience with the methods by which knowledge is extended is an essential element in the training of all economists who are to use the products of research, whether they are to serve in teaching, civil service, or other capacities. This point is so evident and so widely accepted as to require no further comment.

In considering the place of research training in the graduate program, I shall take up first some general considerations relating to the environment provided by graduate departments, and then deal specifically with the master's thesis and doctoral dissertation.

Research Environment

The most important weakness of many graduate departments of economics is a failure to create a *research environment* for graduate students. I mean by this an environment in which students are literally surrounded by research, in which they can scarcely avoid frequent and first-hand contact with scholarly investigation both as observers and as participants, and in which the spirit of inquiry is prevalent. Unhappily, in some institutions which offer graduate instruction in economics, the failure to provide such a research environment is due simply to the fact

[1] See pp. 47-8.

that little research of consequence is in progress. But even in those institutions where research flourishes, a favorable environment for graduate students is sometimes lacking because students have little firsthand contact with the ongoing research program either as observers or participants. In advancing these criticisms, I do not intend a blanket indictment of every graduate department of economics. Some have succeeded remarkably in integrating graduate students into a productive research program. But there are few departments which could not show improvement in this respect.

On the whole, the natural sciences have far surpassed economics in the creation of an environment favorable to research training. In these fields, research is actively practiced by most graduate professors almost as a matter of course. Students work daily in laboratories alongside their professors. They are aware of the various projects of professors and other students. They observe the objectives, the methods, the difficulties, and the results. In the process of daily living, they become conditioned and oriented toward research. Contrast the situation of the typical graduate student of economics. He often knows little about the research work of his professors and other graduate students except through occasional seminar papers. He engages in little research himself until he writes his thesis or dissertation. His work then tends to be an individualistic enterprise in which only he and, at infrequent intervals, his professor are concerned. There is little of the daily working together, the frequent consultation, the sharing of problems that characterizes many scientific laboratories. What I am suggesting is that graduate departments of economics should emulate, in spirit and practice, the research environment of the scientific laboratory.

How can this be done? First, a substantial amount of genuine research must be in progress. Second, students must have the opportunity to become intimately acquainted with this research—with its objectives, methods, difficulties, and results. This calls for seminars and discussions in which the students are observers and participants. It also requires close personal contacts between professors and students. Third, instruction in research methods must be given (perhaps, but not necessarily, by the introduction of special courses such as have been inaugurated at several institutions). Fourth, and most important, students must themselves engage actively in research. Only in the kind of research environment where these conditions are met are students likely to acquire favorable motivation toward research, understanding of its methods, ability to criticize the research findings of others, and research competence of their own.

A satisfactory research environment can be achieved without any special organization for the purpose. It is necessary only that staff

members be actively engaged in research; that graduate students participate actively in research—not only in connection with their theses and dissertations but also in other ways; and that there be adequate means for constant communication among staff members and students on research activities. In such an environment students would function as apprentices, gradually passing from simpler to more exacting tasks, and eventually on completion of the doctorate achieving a considerable competence as independent research workers. To provide useful apprenticeships for students, however, is not always automatic or easy. Some kinds of research, notably theoretical analysis, are not suited to work by more than one person. It is difficult to utilize inexperienced research assistants on any but routine clerical work from which educational returns are not great. Students come and go, and there is no assurance that projects started will be finished or will be finished in good time. It is often easier to do a job oneself than to explain to another how to do it and to supervise his efforts. It is often more efficient to hire a well-trained professional person than to utilize student labor. All of these factors tend to discourage efforts to assimilate students into the ongoing research programs of staff members. But despite difficulties, the need remains; and the need is so great that it is essential to find ways to adapt research programs to instructional requirements. Academic research is intended to advance knowledge, but it is also intended to contribute to the training of students. In the achieving of the first of these purposes, the second should not be ignored.

Organized Research

It is probable that organized research agencies, which are becoming increasingly common in our universities, offer promising possibilities for improving research training. These research agencies include the labor relations institutes, area study institutes, research centers, bureaus of business research, agricultural experiment stations, contract research projects sponsored by governmental agencies, etc.[2] These agencies have staff, budgets, and ongoing programs. They often sponsor a variety of research enterprises including both individualistic and cooperative or "group" projects. When research training becomes one of their objectives—which unfortunately is not always the case—they provide an ideal setting in which graduate students can function as apprentices in research, and can be on the "inside" of an active program. It is not essential that graduate students be paid for their work in every case, though if finances permit such payment, pecuniary as

[2] Sometimes also close working relations are developed between departments of economics and outside private or public research institutions.

well as educational problems are solved in happy conjunction.[3]

With such organized agencies, combining the objectives of inquiry and training, the student is able to observe and participate in research conducted under conditions similar to those he will experience if he later becomes a research worker in government or business. He has an opportunity to become acquainted with the kind of research—especially empirical research—which transcends the limits of the traditional solitary scholar whose only facility is a library. He can receive the stimulus which comes from working as a member of a team. Indeed, the advantages are so great that there is doubt in my mind as to whether a graduate department of economics can afford to be without some type of organized research program. This would be a counterpart of the laboratory in the natural sciences.

I am not suggesting, however, that mere formal organization is enough. There are dozens of academic research institutes and bureaus which, though doubtless performing valuable functions, are not accomplishing the purposes here outlined. Some of them are not really engaged in research at all, and some are virtually inert. What is needed is an active organization engaged in genuine research, and providing opportunities for student participation.

It would be foolish to suggest that every department of economics should establish an organized research agency of particular specifications. Departments vary in history, structure, personnel, specialized interests, financial resources, and need. Some may be able to accomplish high-quality research training with no organization whatever. Nevertheless, to be more specific, I shall try to indicate some of the features of one kind of desirable research organization, and to suggest how it might function. I shall refer to it as an institute of economic research.[4]

An Institute of Economic Research

The institute would have a budget, a director, a staff, an office, research facilities, and a research program of its own. There would be close connections and considerable overlapping between the staffs of the institute and of the economics department. Members of the institute staff might teach part-time, and members of the teaching staff might join the institute on a part-time basis or full-time for temporary

[3] There is no reason for supposing that a graduate student in economics might not participate actively in a research project for graduate credit and without financial reward, just as a chemistry student may undertake research assignments without compensation. Decency would require, of course, that the student be given recognition for his contributions and not be exploited by assigning him tasks of little educational worth.

[4] Of course its scope might be limited to a particular area such as labor, international economics, public finance, business cycles, etc. However, there are advantages in not so restricting it to a narrowly specialized field.

periods. The program of the institute would be reviewed by a committee including members of the teaching staff. The director of the institute would be responsible to the chairman of the department. The institute, in other words, would be an integral part of the department. The importance of this close relationship is obvious if research training is to be one of the functions of the institute.

In carrying on its own research program, the institute would provide abundant opportunities for graduate students to observe and to participate. Ideally, it would provide research assistantships with stipends, but it should also provide a research workshop to provide practical experience for students who do not receive remuneration.

The institute should also facilitate the research of members of the teaching staff and of graduate students. It should encourage their research. It should provide technical assistance and advice, for example, on statistical problems. It should provide, for approved projects, facilities or funds for clerical assistance, machine tabulations, travel, survey expenses, books, etc. It should provide leadership and assistance in obtaining grants from foundations and government contracts, and it should be a clearing house for contacts with outside sources of funds. It should maintain facilities for communication among all staff members and students on research in progress—perhaps by sponsoring frequent research conferences, seminars, and discussions, and by duplicating and distributing research memoranda.[5]

Such an institute need not interfere with the research activities of staff members who work best independently, or who are engaged in the kind of scholarly endeavor which requires solitude. Its function would be to help and encourage where such help and encouragement are useful. Its duty would be to carry on its own research, to stimulate the research of others, and to create a research environment in which graduate students could learn from observation and participation. Such an institute would be the counterpart of the *laboratory* which has been so eminently successful in the natural sciences. Just as physicists need cyclotrons, electronic microscopes, and laboratory technicians, econo-

[5] Dr. Paul Webbink of the Social Science Research Council has enumerated 11 key functions of university research organization in the social sciences: (1) to assume responsibility for acceptance and expenditure of research funds from all sources, (2) to review project proposals and to handle solicitation of funds, (3) to appraise research needs in light of resources and personnel, (4) to provide guidance and counsel in the planning of research, (5) to give counsel in the execution of projects and appraisal of results, (6) to foster research talent, (7) to provide facilities, (8) to encourage communication and cooperation among the several social sciences, (9) to represent the social sciences in negotiations with the graduate college or central administration, (10) to record research progress, and (11) to aid in publication. See "University Organization for Social Science Research," Social Science Research Council, *Items*, June 1948, pp. 1-5. See also: Donald Young and Paul Webbink, "Current Problems of Council Concern in Research Organization," *Ibid.*, Sept. 1947, pp. 1-5.

mists need facilities for surveys, tabulation equipment, and clerks. Just as physicists require laboratories where professors and students work together in an atmosphere conducive to the relationship of apprentice to master, economists need organized research programs in which students can observe and take part. Adequate research training in economics requires more than the accumulation by a student of the required number of hours of course credit, to be followed by a few conferences with a professor regarding a thesis or dissertation plan, and then a lengthy and lonely period of poring over books in a library. This is not to suggest that books are useless or that library research is passé, but only that a department which pretends to train students in research ought to offer more than that.

It may be objected that the cost of a scheme such as is suggested would be prohibitive. There are several answers. First, many universities already have institutes or formalized research organizations of one kind or another.[6] Some of these are already performing the indicated functions or could be adapted to the need without great increases in cost. Second, the outlay from university funds need not be large; the modest support by a university can be handsomely augmented by research funds for worthy projects from foundations and government agencies. Third, if universities can afford the kind of money required for research in physics, chemistry, medicine, and other material sciences, there is no reason to suppose that they cannot afford the relatively modest amounts required for research in economics. The traditional view that economists require nothing more than books can no longer be sustained.

There are, of course, dangers in the suggested scheme. First, it is easy, in enthusiasm for organized research, to belittle the efforts of the lone scholar whose only tools are his own intellect and the writings of others. Many of the great contributions of economics have been made

[6] Of 53 reporting graduate departments, 31 (58 percent) indicated that they have special funds to support research. Of these, 20 departments reported amounts and sources as follows:

Amounts	*Number of departments*	*Sources*	*Number of departments*
$ 0— 3,000	4	The University	17
3,000— 10,000	5	Foundations	7
10,000— 20,000	4	Industry	6
20,000— 40,000	3	Government	5
40,000— 70,000	1		
70,000—100,000	1		
100,000—130,000	2		

Of the 53 reporting institutions, 29 indicated that they make a practice of assisting individual faculty members in their research. The kinds of assistance in the order of their frequency were: direct grants, provision of research or clerical assistants, reduced teaching loads or paid leaves of absence, and funds for travel and publication.

by men working with only these tools supplemented by their own acute powers of observation (Smith, Ricardo, Mill, Marshall, Keynes, and many others). The same thing can be said of physics. Einstein's great contributions resulted from no "organized" research project. Nevertheless, in both economics and physics there is a place for research utilizing laboratories, facilities, organization, and financial support. Second, efforts to obtain funds from outside sources may divert energies from research in which staff members are interested and consider important to whatever research outside agencies are willing to support. Universities might thus become mere "project centers" engaged in programmatic research to the neglect of their main functions in the advancement and dissemination of knowledge. Related to this is the danger that the prestige going to those staff members who raise or receive money for research projects may cause discouragement to those staff members whose talents or interests lie in other directions. These are genuine dangers, but they are not inevitable. Obviously, a research program should be operated with good judgment and a sense of proportion, and without bureaucratic control over the creative efforts of scholars. But it is better, at least for purposes of research training, to have narrow programmatic research in progress than none at all.

Empirical Research

A special aspect of the research environment in which graduate students are trained is the *content* of the research which they observe and in which they participate. My impression, though this is difficult to confirm, is that academic economic research is very heavily weighted toward the theoretical, the historical, the critical, the synthetic, and the appraisal of public policy; and in contrast relatively little emphasis is given to empirical research which seeks to obtain new facts useful for testing hypotheses. Most of the research is of a kind that can be done in a library; it is bookish and such data as are used are drawn from secondary sources. It is of course understandable that this should be so. The traditions of economics are scholarly and literary. Theory built upon certain exiomatic principles has always been its leading technique. Economists have drawn their facts from general observations of the market place and from statistical aggregates usually collected by governmental agencies. This has proved fruitful for many problems, and in no sense do I suggest abandonment of these lines of inquiry. I suspect, however, that the emphasis has developed through following lines of least resistance and least cost. It is easier, cheaper, and in some ways more satisfying, to conduct economic research from the library cubicle than it is to go to the outside world for facts. Thus generations of academic economists have studied the determination of prices on the

basis of conventional postulates about the behavior of firms; yet our knowledge of how firms actually behave is still rudimentary. Or thousands of academic economists have considered theories of employment involving hypothetical consumption functions while only dozens have labored to find the factors underlying the responses of consumers to changes in income.[7]

Some of the reluctance of economists to do detailed empirical research is, in my judgment, due to the desire to construct systems at the highest levels of abstraction, and to a wish to solve the world's practical problems at the highest levels of policy determination. While the problems of the world press for answers it seems futile and pedantic to conduct empirical research about the details of economic behavior. Yet it may not be possible to solve the larger problems until more reliable and more detailed knowledge about the real world is available.

Should not steps be taken to broaden the base of economic research, i. e., to increase the relative emphasis placed upon empirical research —particularly upon that branch of empirical research which is concerned with the behavior of people in their roles as consumers, workers, investors, business men, government officials, etc.?[8] Should not graduate students be exposed to, and become interested in, this kind of empirical research? Would not the profession be advanced if coming generations of economists would devote somewhat less of their research efforts to theory, history, problems of national policy, criticism, and syntheses, and more to the empirical study of human behavior in its economic aspects?[9]

If the answer to these questions is in the affirmative, then the case for the "institute of economic research" is strengthened. Empirical research requires funds, clerical assistance, facilities, technical services, and other aids which are not ordinarily available to the professor working without an organization to support his efforts. With the establishment of such institutes, a regularized method of financing and executing empirical research is provided.

[7] This methodological bias was particularly impressed upon me when I was recently asked to furnish a list of economists who are engaged in behavioral research. I found difficulty in naming a half dozen.

[8] It might be supposed that psychologists and sociologists could do the job for economists. But unhappily except in a few isolated cases, they have so far shown little interest in the economic aspects of human behavior. There is a kind of intellectual vacuum at the very foundation of economics and relatively little is being done to fill it.

[9] A significant aspect of the need for more concern with empirical and behavioral research is that training in research of this kind is highly useful to economists who are to be employed in government and business. One of the frequent criticisms of graduate students who enter these positions is that their interests and experience are not sufficiently oriented toward empirical research.

The Master's Thesis

In Chapter 4, I suggested that graduate students—even those who expect to proceed to the doctorate—should take the master's degree, and I have proposed certain standards for this degree. Among these standards are the following: (1) that each candidate should be prepared in at least one special field in addition to the common core; (2) that he should be able to write correctly and with logical organization brief or fairly extended discourses on subjects in his special field; and (3) that he should be able to carry on limited research projects under general supervision or serve as a useful research assistant. I recommended that each candidate should write a master's thesis or equivalent as preparation for meeting these requirements and as a test of his ability to do so.

This judgment is apparently confirmed by both practice and opinion in many departments of economics. Of 107 universities for which data are available, 86 (84 percent) require a master's thesis or essay of all master's candidates. Usually this thesis is considered to comprise about one-fifth of the total work for the degree. About two-thirds of responding graduate professors indicated that in their judgment all candidates should be required to write a master's thesis or essay.[10] And about three-fourths of these professors reported that they are reasonably satisfied with the functioning of the master's thesis in their departments. When asked if changes in the requirements and practices regarding the master's thesis are anticipated, only 2 of the respondent professors stated that the requirement may be dropped, and 4 more that the requirement may be changed in some respects. When asked what they thought the educational objectives of the master's thesis are, or should be, the respondent professors mentioned the following:

Experience in extended analysis
Experience in writing
Experience in research
Experience in reaching valid conclusions by independent study
Appreciation and understanding of research and scholarship
Acquiring knowledge of a specialized field
Training in research methods
Familiarity with source materials
Testing preparation for work toward the Ph.D.

When the professors were asked if they thought these objectives were being achieved to a reasonable degree, only 2 replied in the negative.

Not only are graduate professors well pleased with the educational

[10] Another 15 percent of the responding professors thought that some but not all candidates should be required to write a thesis (data from schedule IV: 61 respondents).

functioning of the master's thesis, but also a majority of graduate students who have written theses express satisfaction. When asked whether the writing of a master's thesis made an important contribution to their intellectual development, their responses were as follows:

	Present graduate students[11]	*Former graduate students*[12]
Yes	58%	72%
Yes, qualified	25	9
No	17	19
Total	100	100

It can be argued that the master's thesis is not an essential part of graduate education. The objectives of graduate work in the early years can be achieved in other ways, for example, by seminar papers, papers written in connection with courses, oral reports, etc. There is no substitute, however, for creative, original, and independent work presented in carefully written reports and subjected to the criticism of professors and fellow students. The advantage of the thesis—and it is an overwhelming advantage—is that it has a tradition. It is thought of by both students and professors as a major task in which students are expected to do their very best. The customs of formal announcement of topics, clear and correct presentation, and deposit in a library gives the thesis a special status. It is likely to call forth greater efforts on the part of students and to elicit greater personal attention on the part of professors than other forms of written and oral work. The retention of the thesis is undoubtedly one way to help protect or reinstate the quality of graduate education and the prestige of the master's degree. Another advantage of the master's thesis is that it is usually written in residence where facilities and counsel can be readily available, whereas the doctoral dissertation is frequently written *in absentia*.

The difficulty with the master's thesis—especially in the departments having larger graduate enrollments—is that the burden of faculty supervision becomes very heavy. Hence there are understandable and perhaps unavoidable tendencies to reduce the emphasis on the master's thesis or, if the formal requirement is maintained, to reduce the amount of supervision.

That the problem of supervision is a real one was revealed not only by many conversations with graduate professors and students, but also by the responses of present and former graduate students to the question: "How might the writing of a master's thesis have been made more valuable to you?" Nearly half of the reporting graduate students in

[11] Schedule IX: 140 respondents.

[12] Schedule X: 218 respondents.

residence in 1951-52 (who had written master's theses) indicated some dissatisfaction with the amount or kind of supervision, counsel, discussion, and conferences which had been available to them. And one-third of the former graduate students indicated similar dissatisfaction.

The subject of teaching loads and other demands upon the time of professors will be considered later. At this point, it may be observed that some graduate professors are carrying burdens so heavy as to preclude their giving detailed supervision to master's candidates. For example, some of the most distinguished members of the profession are carrying 6 to 9 hours of classroom teaching and supervising as many as 25 to 30 Ph.D. dissertations at one time. These same men are often in frequent demand for consulting, speaking, and writing. So it is small wonder that the master's candidates are sometimes given hasty consideration. The complaint about inadequate supervision, however, comes partly from students who are working under heavily loaded professors. It comes also from those who are working with professors whose loads, superficially at least, would permit them to give careful attention to their master's students.

The conclusion is inescapable that the kind of close working relationship between professor and student which might yield large educational dividends is lacking in a large percentage of cases. Some departments do not allow time for their professors to give this kind of attention to students, or when the time is given, some professors apparently do not take the responsibility seriously. In my judgment, this is a serious problem. Departments, large and small, should re-examine their educational programs for first-year students to determine whether they are meeting their obligations, or whether they are merely acquiescing in the trend to convert the first graduate year into a fifth undergraduate year.

The Doctoral Dissertation

There is no serious question as to the desirability of retaining the doctoral dissertation as a major requirement for the Ph.D. Almost everyone is agreed that it should be continued in something like its present form. Both professors and former graduate students indicate overwhelming approval of the dissertation as a highly effective educational device.

At most institutions, the educational objective of the doctoral dissertation is to train students in independent research and in the orderly and effective presentation of results. It is also intended to increase the student's knowledge of a specialized field within economics.

In general, the dissertation is regarded as a major task which will occupy at least a full year of the student's time. Most departments adhere, in principle at least, to the traditional concept that the dis-

sertation should be an "important and original contribution to knowledge," though there is widespread skepticism as to whether this standard is or can be actually attained. The sheer size and diversity of the annual list of doctoral dissertations presented each autumn in the *American Economic Review* leads to skepticism as to whether all of these projects will ultimately come to something important and at the same time original. Yet, year after year, there is an amazing variety of interesting work in progress by doctoral candidates, and the net result in terms of the growth of these students, if not in the development of the science, is surely most gratifying. However, there are certain criticisms of present practice, and improvements are possible.

As already indicated, a major criticism is that the topics selected and the methods employed are heavily weighted toward library research conducted wth secondary sources of data by single unassisted research workers. There should be no blanket condemnation of such topics and methods; for many purposes and for many students, "lone-wolf" library research is entirely appropriate. Yet because of the greater ease and the relatively smaller cost of this type of project, there is almost surely a slighting of the type of projects which requires the collection and manipulation of primary data. This raises again the question of the research facilities and environment of the department in which the student functions. In my opinion, many departments would be well advised to encourage the integration of doctoral research into the organized research programs of the department. In other words, it should be possible for dissertations to be written in connection with the work of the "research institute" described above. In this way the student would be able to undertake research of an empirical type under adequate supervision and with essential facilities. Sometimes, but not necessarily, his dissertation could be part of a larger study. In these cases, he would be able to learn not only from his own specific task but also from close association with the work of others. In all cases, however, his work should be clearly identifiable and independent.

This raises the question, frequently faced in agricultural experiment stations and other research organizations, as to whether students should ever be paid for the research they do in connection with their master's theses or doctoral dissertations—or to put it another way, whether students should ever be permitted to present, as a thesis or dissertation, work which they have done in connection with an organized research program and for which they have been paid. The answer to this question is not clear. It raises issues regarding the equitable treatment of those students who do not receive compensation for their research. Discussions with many professors who have had experience in these matters suggests that there is no compelling reason for denying a stu-

dent the privilege of using in his dissertation research work for which he has been paid. There is little difference between this and a scholarship available during the period of preparing a thesis.

I should emphasize again that I am ***not*** suggesting that all dissertations should be part of organized research programs or that there is no place for the more conventional topics and methods. I am only pointing out that the organized research program provides a splendid way of promoting more empirical work, of making better research facilities available to students, of providing good supervision, and possibly of making available more financial assistance.

But regardless of whether a department has a research institute, I should strongly suggest that the range of research facilities available to doctoral candidates be enlarged to include more than a library. Many worthy doctoral projects require travel, clerical assistance, machine tabulations, field surveys, etc. Departments should have funds which could be made available to students for these purposes, and should encourage more students to undertake the kinds of projects which require these facilities. These things are the counterpart for economics of the laboratories which are so essential in the natural sciences. At present, only a handful of departments have funds available to support the research of doctoral candidates except for those candidates who receive outside grants (e.g., from the Social Science Research Council). Yet an overwhelming majority of professors believe that such aid should be provided. In my opinion this is a most urgent next step in improving the research training of economists.

It is sometimes possible for doctoral candidates to utilize in their dissertations research which they have done when employed in a business, a governmental agency, or a non academic research institution. Sometimes this works out well, though it has the disadvantage of all work *in absentia*. This raises the question of supervision of the doctoral dissertation.

Supervision of Doctoral Dissertations

For many reasons, the principal one being financial, many dissertations are written *in absentia*. Generally, this is an undesirable practice. It often means that the student gets little attention from his advisers, loses the stimulus of working in a university environment, divides his thought and energies between his job and his dissertation, and works without adequate library and other facilities. Moreover, the length of the period over which he is working on his dissertation is greatly extended so that the process becomes a burden, a bore, and a source of frustration. Many dissertations are not completed for this very reason. It is highly desirable in most cases for the dissertation to be completed, or virtually completed, in residence.

If this is to be done, however, departments must encourage their students to remain during the writing of the dissertation. In many departments there is practically no such encouragement; it is regarded as normal procedure for students to leave when they pass their preliminary or general examinations. I believe that all departments should advise students unmistakably of the advantages of remaining in residence until the dissertation is near completion. Advice, however, may not be enough in view of the financial burdens faced by students. One solution, therefore, is to offer more scholarships or part-time graduate appointments to students who are in the final phase of their graduate work. This raises a difficult issue. Assuming that a department has a given sum for aid to graduate students, shall it be used to finance a larger number of students through the first two graduate years, or shall it be used to finance a smaller number of students through three years? Some institutions have quite consciously chosen the first of these alternatives. In my opinion, this is likely to be the wrong answer. It would be better to be more selective and to provide aid throughout the graduate careers of students.

Even if students receive scholarships or part-time appointments during the period when they are working on dissertations, the temptation to take full-time jobs paying several times the graduate stipends will be strong. So even here the solution requires encouragement or persuasion. Departments should attempt to create the attitude that it is normal for students to stay in residence until the dissertation is virtually complete, and that it is unusual or irregular to attempt to write dissertations *in absentia*. When students find it financially impossible to continue residence after passing the general examinations, they should be encouraged to return for additional residence at a later time.

It does not follow, however, that if the student remains in residence during the writing of his dissertation, he will automatically receive adequate guidance and supervision. One of the most frequent complaints of graduate students is that they get little assistance from their professors, and that they are delayed by the slowness of professors to read and criticize their work or by difficulty in seeing the professors at all except for perfunctory and infrequent visits of short duration. While the complaints are more numerous in the departments with large graduate enrollments and overburdened professors, the complaints are also found in institutions where graduate enrollments are relatively low. When former graduate students were asked how the writing of a doctoral dissertation might have been made more valuable, 60 percent (of 164 who had completed dissertations) responded that more or better supervision, conferences, discussion, etc., would have been helpful. This is a serious indictment of graduate instruction—one which

should lead departments to reconsider the teaching and other loads of professors on the one hand, and the obligations of professors to students on the other.

It is obvious that guidance and supervision can be overdone. The dissertation is supposed to be a measure of the student's ability to work *independently*, and not of his efficiency in carrying out the suggestions and elaborating on the ideas of his professor. Students vary in the amount of guidance they need. Nevertheless, graduate students, no less than other research workers, need the benefit of frequent criticism, suggestion, and discussion.

Scope and Content of Doctoral Dissertations

A criticism of many dissertations is that they are too long, that they deal with problems that are too comprehensive, and that they tend to become syntheses of other economists' ideas rather than reports of original research. I think there is little doubt that too much attention has been given to length; a tradition has developed that a dissertation in economics must be a sizeable tome. There is merit in current tendencies to permit students to present dissertations of article length, provided the quality and extent of work involved is up to standard and provided adequate documentation and description of methodology are presented. Length should be a function of subject and not an end in itself. Indeed the goal of originality would be more frequently attained if students did not feel a compulsion to produce a lengthy document.[13]

It is sometimes argued that the education of the student—especially his preparation for college teaching—will be advanced more fully if he writes a lengthy synthetic dissertation covering some broad subject than if he conducts research on a narrow topic and presents his results in the form of a research report. This raises a very fundamental issue. My own view is that the educational merit of a specific subject on which the student attempts to do original research is greater than that of a broad subject on which the student attempts to write a book. If the specific research is adequately done, the student will be required to understand the broad field of which it is a part just as thoroughly as though he had written a book on it. In addition, by pursuing the specific subject, he learns about the methods and nature of research. This he

[13] A critic writes: "The dissertation requirement—as it has been enforced—has contributed to lowering the standards of research in economics. The frequent insistence on length plus the burden on professors resulting from too many dissertations to supervise has led to low standards of quality. Sloppy work is accepted. The student regards this as evidence that this is an acceptable standard of quality in general, and proceeds to use it in future work. He leaves his graduate work with no real standards of workmanship. The dissertation requirement—properly enforced—could make a major contribution to raising standards of research. For this purpose, it is absolutely essential that emphasis be shifted from quantity to quality."

may never learn merely by reading and rearranging the writings of others. In these comments, I do not mean to generalize for all students or to insist that all dissertations should follow a particular rigid pattern. Yet I find difficulty in accepting the view that research on a specific and limited problem is narrowing in terms either of breadth of personality or breadth of knowledge. It can be so regarded only if it is assumed that the doctoral dissertation is to be the student's final creative effort. This is precisely what we should strive to avoid. His dissertation should represent one research effort made in the expectation that there are others to follow.

A special aspect of the scope or comprehensiveness of dissertation topics relates to the premium which the labor market for economists places upon the Ph.D. A student who elects a difficult or extensive topic requiring a long time to complete is placed at a disadvantage as compared with one who elects a fairly easy or restricted topic. Other things equal, the latter will receive his degree earlier and will move up the academic or other professional ladder sooner. By the same token, a student who does a careful and thorough job is placed at a disadvantage—at least in the short run—as compared with one who does the sloppiest acceptable job. Students therefore acquire the attitude that the dissertation is something "to try to get over with" as soon as possible. Many have expressed this attitude to me quite bluntly.

I am not sure that there is any solution to this problem except the one of maintaining adequate minimal standards. Surely there is little hope of establishing a nice equality in the amount of work involved in all dissertation topics. One suggestion has been made, namely, that the degree be awarded after a student has made significant *progress* (adequately reported) on a major subject comparable to that required for *completion* of a minor topic.

Publication of Doctoral Dissertations

I have already indicated in Chapter 4 certain doubts about the practicability of mandatory publication.[14] Yet it must be admitted that publication may serve two useful purposes: (1) it may help to maintain standards, since both professors and students will be more meticulous regarding a document that is to be published than one which is to be limited to typescript and buried in a library; (2) it may help to disseminate the results of doctoral research.[15]

As a compromise solution to the publication problem, would it be possible to publish abstracts—perhaps up to 25 pages in length—of

[14] See pp. 48-50.

[15] Microfilming has helped on this, though it is not yet a full solution.

those dissertations which are not otherwise published? These abstracts might be printed by an inexpensive photo-offset process with copies enough for a list of leading research libraries. The cost might be borne entirely or in part by the students or by the university. Another possibility would be that the American Economic Association would undertake to publish these abstracts in quantities sufficient for distribution to a selected list of libraries.

Chapter 10

TEACHER TRAINING

A wholesome development in the field of graduate education is the increasing concern for the preparation of men and women for college teaching. Deans of graduate schools and others engaged in education at the graduate level are asking themselves whether conventional graduate education, with its emphasis on specialized "research," is well-suited to the preparation of college teachers. Since a substantial portion of their students become college teachers (in some fields the great majority enter college teaching),[1] the question quite naturally arises as to whether a program of training oriented toward research is really suitable for persons whose professional lives will be spent as teachers. The question becomes especially pertinent in view of the fact that the Ph.D. has become a union card for college teachers, and is therefore sought by thousands of persons who have no intention of devoting their lives to research.

The problem is also significant for departments of economics. It is true that many graduate students of economics ultimately serve in government, business, and private research organizations; yet a large number of them enter college teaching. A Committee of the American Economics Association on the Teaching of Undergraduate Economics considered the question of the training of teachers, but decided that a comprehensive study of this subject "would have to concern itself with the complicated business of our graduate schools, and would necessarily be coextensive with the whole subject of graduate instruction in economics."[2] Accordingly, in its report of December 1949, this group recommended that "a committee be appointed to study and report on graduate training in economics, the report to consider both the development of scholarly techniques and the development of competent teachers." The present study is a result of that recommendation.

Issues and Points of View

In chapter 3, I suggested the following minimal standards regarding teaching ability: (1) at the time of receiving his master's degree, a student should be able to teach, under supervision and with time for preparation, the first undergraduate course in principles of economics;

[1] See p. 10.

[2] Horace Taylor (editor), *The Teaching of Undergraduate Economics, American Economic Review* (supplement), Dec. 1950, p. x.

(2) at the completion of the Ph.D., the candidate should be prepared to teach, at a level of proficiency acceptable in a leading university or college, principles of economics, the first undergraduate course in his special field, and (given time for preparation) intermediate economic theory. These standards were intended to apply to all students whether or not they expected to enter college teaching. They were proposed on the ground that a candidate who would be unable to meet these standards would be handicapped not only as a teacher but also in other jobs within the profession. These other jobs also require basic knowledge of economics and the ability to impart it to others. Almost all economists are in some sense teachers. Thus it is entirely appropriate that practically all should be expected to have some competence as teachers, just as all should be expected to have some competence in research. According to this view, about the same type of training is suitable for all graduate students in economics regardless of their career objectives. Those who expect to enter teaching should be trained in research and those who expect to engage in research should achieve a certain competence in teaching.

There are many who take issue, in varying degrees, with this position. At the extreme are those who believe that the type of education suitable for college teachers is markedly different from that suitable for research workers, and that the orientation of graduate education toward research detracts seriously from its usefulness in the training of teachers. It is held that this is particularly serious because most students —at least those at the Ph.D. level—do in fact enter college teaching. The main criticism levelled against present practice is that preoccupation with research, especially the writing of a dissertation on a restricted topic, is narrowing. It involves, it is said, the learning of more and more about less and less, whereas the need of prospective teachers is breadth of knowledge and ability to organize, synthesize, and criticize a wide range of ideas. This position has been expressed persuasively and in detail by Howard Mumford Jones in his book, *Education and World Tragedy*,[3] in which he proposes drastic reorganization of the conventional graduate college into two units, one an institute of research for the training of research workers and the other a graduate college for the training of teachers. Others, while favoring no such drastic solution,

[3] Cambridge, 1946. For discussion of various aspects of this issue, see also T. C. Blegen and R. M. Cooper (editors), *The Preparation of College Teachers*, American Council on Education, July 1950; President's Commission on Higher Education, *Higher Education for American Democracy*, Vol. I, pp. 84-91 and Vol. IV, pp. 1-26, Washington, U. S. Government Printing Office, 1946; W. S. Gray, "Preparation and In-service Training of College Teachers," *Proceedings of Institute for Administrative Officers of Higher Education*, Vol. 10, 1938; Ruth E. Eckert, *The Preparation of College Teachers*, National Education Association, 1948; Fred J. Kelly, *Toward Better College Teaching*, Washington, U. S. Government Printing office, 1950.

propose increasing attention to the objective of training college teachers which, they feel, is not now being satisfactorily achieved. One of the most forceful expositions of this middle position is a report of a University of Chicago group: "A Statement of Policy and Plans Prepared by the Committee on the Preparation of Teachers."[4]

According to the Chicago report, the role of the college teacher includes five functions: (1) to participate in formulating the educational ends and the curricular structure of his institution, (2) to guide and encourage students in learning something of the nature and use of the essential knowledge and characteristic methods of his teaching field, (3) to engage in research and other types of creative activity, (4) to serve as counselor of students, and (5) to participate as a citizen and especially to assist in interpreting to the community his institution and higher education generally. The substantive training of a college teacher should include a well-balanced general education in the arts and sciences, a command of the broader division of knowledge within which his field of concentration lies, and acquaintance with the full range of basic research methods used in his field.

The Chicago report states that "the college teacher must be essentially an interpreter rather than creator of knowledge. . . . Yet the *interpretation* of knowledge should not be confused with the mere *transmission* of knowledge. . . . The best interpretation and hence the best teaching will seek to bring about the active reconstructing, by both teacher and student, of the processes whereby some present outcome was achieved in the past and further knowledge may be gained in the future. It follows that the interpretations of the college teacher will be most precise and authentic if, as graduate student, he himself made a contribution to understanding and if, as teacher, he remains capable of making further contributions to it. Therefore . . . the college teacher should have training in research of such a character as to give him the experience of making a contribution to understanding. However, because much of the research which has been done by graduate students has been trivial, repetitive, and unilluminating, the Committee further believes that the research training of a prospective teacher should be acquired whenever feasible in connection with a problem of such scope and significance as will lead him to employ a considerable variety of the principles, materials, and techniques of his eventual teaching field."[5] The Chicago report offers two proposals: (1) a seminar in college teaching, and (2) apprentice training, after the completion of the dissertation, at stipends equal to the salaries students might have

[4] Mimeographed, June 14, 1948. Dean F. C. Ward was chairman of the Committee and Professor H. A. Anderson its executive secretary.

[5] Ibid. pp. 10-11.

obtained as instructors elsewhere. The committee is critical of most present part-time teaching assistantships because the student gets little training or supervision and because teaching tends to be a secondary interest during the period of his graduate study.

The main concern for greater attention to the training of college teachers has been expressed not only in words but also in actions. Several universities have established seminars or courses in techniques of college teaching; some have attempted to give close supervision and guidance to teaching assistants; several (notably Harvard and Syracuse) have instituted new doctoral programs in "social science" intended especially for prospective teachers; other universities while retaining the form of the traditional Ph.D., have in fact changed the orientation from research to teacher training; others, while retaining the conventional Ph.D., have undertaken to provide short courses and other educational experiences for college teachers who are already on the job.[6] Several conferences on the subject of training college teachers have been held, and the American Council on Education has evidenced active interest in the subject.

Though a considerable number of educators have criticized the traditional graduate program on the ground that it is not entirely suited to the needs of the prospective college teacher and though many proposals for reform have been made and some acted upon, yet my impression is that a great majority of those concerned with graduate education do not favor substantial departure from conventional practice.

The Association of American Universities in 1948 expressed itself forcibly in favor of retaining the traditional Ph.D. when it adopted a report stating: "We re-affirm our belief that the essential requirements for the Ph.D. degree as they are now in force at the member institutions are in general fundamentally sound. The Ph.D. degree is granted to those students who (1) have mastered a definite field of knowledge so that they are familiar not only with what has been done in the field but as well with its potentialities and opportunities for further advances, (2) have demonstrated capacity to do original and independent scholarly investigations in the field, and (3) have ability to integrate their field of specialization with the larger domains of knowledge and understanding. The training for the Ph.D. degree involves the demonstration that difficult problems can be solved through properly conducted research. . . . Much of the criticism of the present programs for the Ph.D degree has come from those who contend that most of the individuals who receive the degree become college teachers and that the

[6] Cf. Report of the Committee on Graduate Work, "Results Obtained from a Questionnaire Study on the Training of College Teachers," Association of American Universities, *Journal of Proceedings and Addresses*, 1948.

training which they receive is unsuitable for the college teacher. Some of the criticism is based upon superficial examination of the facts and upon failure to recognize the complexities of some of the problems. The thesis that long preoccupation with special knowledge serves to make a man unfit to explain the elementary matters in his own field has yet to be proved nor does the likelihood that this is true appeal to common sense. Teaching is actually an art, the successful practice of which depends on qualifications in addition to knowledge such as a pleasing manner, a good voice, an aptitude for dealing with people, a skill in simple exposition and an ability to distinguish an important point from a detail. However, the training which has shown an individual the danger of easy generalization in one area of scholarship should serve to guide him in all generalization and so make him a safer guide in the classroom. . . . It must be emphasized that a finished college teacher cannot be produced even by the best program a graduate school might develop. Excellent teaching comes only with experience and continual self-improvement which the individual as well as the institution employing the teacher must recognize. . . . The experience gained in selecting and carrying out a piece of research has inestimable value for the student preparing for an intellectual career, whether as a research scientist, a worker in the social field, or as a college teacher."[7]

Views of Economists

From my inquiries among graduate professors of economics I have concluded that a great majority would agree with the view expressed in the above quotation. When asked: "Do you feel that you have any responsibility to train your doctoral students in the art of teaching?," 55 percent replied in the negative, indicating that the only training should be by example and by general training in written and oral presentation. Another 40 percent thought that their responsibility for teacher training included only the provision of teaching assistantships and informal aid to these assistants. Apparently no one favored formal instruction in pedagogy as part of the doctoral program.[8] From verbal conversations on this point, it was evident that many professors view with horror the possibility that courses in "education" might be given to doctoral candidates. They are adamant in the opinion that if any instruction in pedagogy is to be given it should be done by economics departments, or perhaps by social science divisions, and not by

[7] Report of the Committee on Graduate Work, "The Significance of and Proper Training for the Degree of Doctor of Philosophy," Association of American Universities, *Journal of Proceedings and Addresses*, 1948.

[8] Schedule VII: 59 respondents.

departments of education. On the question of whether the programs of prospective college teachers and prospective research workers should become separate and distinct, the response was an equally clear-cut negative. Only one respondent thought this a good idea, three gave qualified approval, and all the rest were opposed.

Heads of departments of economics in those institutions of higher education which do *not* give graduate work, however, expressed somewhat different views. They were asked: "What is your reaction to the frequent proposal that graduate study should be oriented more largely toward preparation of teachers rather than toward the training of research scholars?" Only 22 percent responded negatively, some of these indicating that training for teaching is secondary to other aspects of graduate education or that there is no conflict between the objectives of training for teaching and for research; 32 percent thought that more emphasis should be given to teacher training, though many of these felt that there was no necessary incompatibility between the two objectives; the remaining 46 percent responded favorably in a way that would indicate support for a considerable increase in the attention given to teacher training, some of these suggesting that the emphasis on research has been greatly overdone.[9]

To summarize, professors in *graduate* departments of economics are overwhelmingly unsympathetic to the idea that the Ph.D. program should be modified substantially in the direction of greater attention to teacher training. On the other hand, many of the heads of *undergraduate* economics departments, which are the principal academic employers of economists, feel that more attention might be given to the training of college teachers.

Some Proposals

My own views of this disputed subject are about in the middle of the various opinions now current. I feel that the essential orientation of the Ph.D. toward research is sound—whether the training is intended for prospective teachers or prospective research workers. As repeatedly suggested in this report, the qualities required for successful teaching are by no means wholly different from those required for effective functioning in other positions which economists are called upon to fill. Knowledge of the subject, scholarly competence, and ability to convey economic ideas are indispensable in virtually all professional work in economics. Nevertheless, just as I believe that many departments of economics should improve their research training, so I think that many should improve their teacher training. I believe this latter could be done without

[9] Schedule XI: 89 respondents.

detracting significantly from the research training and without elaborate reorientation or reorganization of graduate instruction.

In most departments, teacher training occurs in three ways: (1) students observe the teaching of the professors from whom they take courses, (2) students gain experience in oral presentation and discussion, and (3) students are employed as teaching assistants. Improvement is possible in all three of these respects, and certain additional methods are feasible and worth trying.

First, it goes without saying that if students are to learn from the example of their graduate professors, the level of teaching in courses attended by graduate students should be good. Anyone familiar with graduate instruction will concede that improvement is sometimes possible here.

Second, it would surely be desirable to require or encourage students to gain more experience in oral presentation and in discussion. This can be accomplished both within and outside the classroom. I have gained the impression that at many institutions student participation within the classroom and in conferences with faculty members is less than would be desirable. I have also felt that the atmosphere and the traditions of some departments are not congenial to the kind of free informal discussion among graduate students which can be a most fruitful educational experience. Positive steps could be taken toward improvement.

Third, much can be done to transform the work of teaching assistants into a genuine apprenticeship in which the student progresses from less to more responsible functions and throughout which he receives guidance, assistance, and helpful criticism from staff members. Practice in this respect varies greatly among institutions. At the one extreme are the institutions which use no teaching assistants; at the other extreme are those which use assistants extensively but with a minimum of instruction or guidance.

Teaching Assistantships

A fairly persuasive case can be made for the employment of graduate students as teaching assistants. This practice can be defended on grounds of institutional efficiency and of effective graduate education. Graduate students, if properly selected and supervised, can serve usefully in the teaching of undergraduates. The cost of this service can be low—especially when it is considered that the same expenditure provides an alternative to scholarships for graduate students. At the same time, by serving as teaching assistants, graduate students can learn a great deal about economics.

It is true that the system of employing graduate assistants is often

abused. In some institutions, so much of the undergraduate load is carried by inexperienced assistants that undergraduates seldom have contact with mature and experienced professors. In some institutions the assistants are not given adequate guidance and assistance, and are thrust without adequate preparation into responsible and largely unsupervised teaching. Educational atrocities are sometimes committed through careless use of teaching assistants. But the system is not inherently bad if not abused.

The following is an outline of a scheme for using graduate assistants which I believe can be defended on educational grounds—from the point of view both of training college teachers and of providing good undergraduate instruction. The scheme is based on two fundamental principles: (1) that the undergraduate offerings should be arranged so that a major part of the work of each undergraduate student would be under mature full-time staff members, and (2) that no graduate student would be placed in responsible teaching without considerable prior experience under supervision.

Under this scheme, a graduate assistant would begin as an apprentice to a full-time staff member. His duties would be to assist in the preparation of examinations, problems, and teaching materials; to help with clerical work; to conduct classes occasionally—sometimes in the absence of the professor but sometimes also in his presence; to observe the teaching methods of the professor by attending classes regularly. As a result of this relationship, the professor could determine when the student would be ready for more responsible teaching. When this point had arrived, the student might be transferred to a large elementary course of multiple sections. Here he would serve again under the direction of the professor in charge. Through frequent conferences he would participate in the planning and conduct of the course, and would have opportunity to discuss methods of presentation and teaching problems.[10] If the graduate assistant succeeds in this teaching under supervision, he is then ready to be recommended for greater responsibility and independence.[11]

[10] His classes might be visited by the professor-in-charge, possibly by other professors, and also by his contemporaries. In my opinion, the inhibition in American higher education against the visitation of classes to observe teaching is unfortunate. Every teacher could afford to learn from his colleagues and superiors about the weaknesses and strengths of his own teaching techniques. Yet teachers are shut off from this source of criticism by the taboo that such visitation is a violation of privacy. However, there is considerable difference of opinion on this point.

[11] A special problem exists in those institutions which are so located that many of their graduate students serve as part-time teachers in nearby colleges. This is especially true of institutions located in large cities. It is possible that some kind of formal cooperative relation between the graduate department and the employing colleges would be helpful. There are obvious difficulties in this, but it would offer distinct advantages to all concerned if the administrative details could be mastered.

The educational values of teaching assistantships are sufficient to warrant giving this experience to as many students as can be done without seriously impairing the quality of undergraduate instruction. Some universities are trying to give every doctoral candidate some teaching experience; this policy has much to commend it. In the preceding chapter it was pointed out that *research* assistantships are also commendable. Of course, the question arises as to whether students should have *both* research and teaching experience during their graduate careers. I am inclined to answer affirmatively, though I recognize the difficulties and the probability that this would lengthen the period of graduate study for many students. I have serious doubts as to whether it is desirable for a graduate student to proceed through his entire graduate career without some practical experience in teaching and/or research. Therefore, I have doubt as to the wisdom, in many cases, of granting scholarships for which no services are required—except during the period when the student is engaged in writing a dissertation.

Seminar in College Teaching

Along with this apprenticeship scheme, a seminar might be offered on college teaching generally or specifically on the teaching of economics. The purpose of such a seminar might be to acquaint the student with educational objectives, teaching methods, curricular problems, student guidance, responsibilities of faculty members, etc. Such a seminar would be, not a substitute for other work, but an addition. This is the same as saying that it should carry no credit. It might be provided as a service to those students who wish to prepare specifically for teaching, or it might be required of those students who are serving as teaching assistants. On the question of whether the seminar should be given by the department of economics, by a division of social sciences, or by the graduate college, I do not have strong views. Generally, I should prefer that it be given by the department. Such a seminar might, over a period of time, contribute significantly to pedagogy and exert a constructive influence upon quality of economic teaching and upon the character of courses in the field.

My recommendation of the seminar in the teaching of economics at the college level is based partly on the belief that we know little, systematically, about pedagogy in economics at the college level. So far as I can learn, we are vague about the objectives of college courses in economics. We have little reliable information about content, methods of instruction, or personal qualities of teachers as related to the attainment of whatever objectives may be decided upon. I should hope that if a few active and continuing seminars in the college teaching of economics were organized under the leadership of staff members vitally

interested in the subject, results of importance to the whole profession might be achieved.

In-service Training

A major issue in the training of college teachers concerns the division of responsibility between the graduate departments in which students are trained and the institutions which later employ them as teachers. Opinion on this question is apparently divided. Some believe that virtually the entire responsibility should be assumed by the graduate departments, and that students who receive the Ph.D. should be finished teachers ready to take on a variety of courses independently and without further guidance. Others believe that graduate departments should assume no responsibility beyond training students in subject matter and research technique, and that it is up to employing institutions to induct them into the job of college teaching in all of its aspects. Others, among them myself, feel that there should be a division of responsibility—that it is unreasonable to expect the new Ph.D. to be a fully-trained and seasoned teacher, yet that he should have had the kind of experiences which would enable him to develop rapidly into a successful teacher (at least within the limits of his talents). At the same time, the employing institution should provide in-service training and supervision which would lead him to recognize and overcome weaknesses and bring out his potentialities. This viewpoint was reported by a majority of the heads of economics departments (in institutions not offering graduate work). The comments of these department heads were as follows (in the order of frequency):

Employing institutions should provide orientation and inservice training programs to clarify objectives and general policies, to help young teachers to grow, and to assist with problems.

Graduate departments should acquaint students with content, method, and philosophy.

Graduate departments should give more attention to teacher training.

Graduate departments should provide supervised teaching experience.

Employing institutions—especially small ones—are not qualified and have no facilities for teacher training.

Graduate departments should turn out competent teachers.

Graduate schools should appraise their candidates more carefully and be more scrupulous in their recommendations.

Employing institutions should give financial aid to young teachers who are trying to complete doctorates.

Teachers are born, not made.

Teachers are self-trained.

Employing institutions have difficulty with in-service training because of the tradition against class visitation or supervision.

Teacher-training "courses" should be resisted—especially if they are to be given by departments of education.

The provision of in-service training for young college teachers is a delicate task requiring a good deal of tact and friendly interest. It can be accomplished most easily and naturally if the new teacher begins his work in a course having multiple sections supervised by a mature professor who is interested in developing good teachers. Another device that may be useful in some institutions would be a seminar or discussion group on teaching problems to be attended by young teachers and led by a mature professor vitally interested in the subject. Orientation literature may be developed. An outstanding example of this is a pamphlet *You and Your Students,* which has been published for its staff by the Massachusetts Institute of Technology.[12] Still another possibility is regional meetings or short courses on teaching problems. These might be conducted by universities to serve the teachers of their areas. The usual professional meetings, while sometimes including discussions of educational problems, do not fully meet this need.

Conclusion

I should reiterate that the kind of approach to the problem of teacher training which I am suggesting does not involve significant reorientation of the Ph.D. program. I believe, and I think most economists concur, that the Ph.D. should continue to be oriented primarily toward research and scholarship in economics. This is the most important aspect of the training of *economists* regardless of their career objectives. In the long run, the best teachers will be produced by this method rather than by a program more specifically related to teacher training. In particular, I would reject the view that prospective teachers should write a kind of doctoral dissertation different from that selected by prospective research scholars.

In my opinion, the view that research-oriented dissertations are undesirable for prospective teachers is based on confusion as to the meaning of "narrowness" or "breadth." A research topic may be limited in scope, indeed it usually must be so limited, but that does not necessarily mean that work on that topic will have a "narrowing" influence on the student. If the topic is a significant one, the student will be required to know how it fits into the broader body of knowledge to which it is related. In working on it, he will be required to familiarize himself with a wide range of relevant literature and sources, he will become acquainted with the tools and methods of research, he will discover cognate problems for further research, and he will gain a "feeling" for

[12] This pamphlet was prepared by a faculty committee under the chairmanship of Professor R. D. Evans.

the process by which research is conducted. These are broadening, not narrowing, experiences, even though the subject itself is specific and limited.

It is true some research topics, even important ones, may not be suitable for doctoral dissertations because they may not have sufficient educational potentialities. But merely because some research topics are unsuitable should not justify condemning all research as "narrowing."

There is also another confusion. Those who regard dissertations based on research as "narrowing" tacitly assume that the doctorate represents the termination of the educational process, and that the dissertation will be the final intellectual effort of the student. Unfortunately this is so in many cases; yet, the entire graduate program can hardly be organized on the assumption that this will be so. The doctoral dissertation is intended to be but one of many studies to be conducted during a long lifetime of intellectual endeavor. It is intended to prepare and encourage students for future scholarly work. To say that this one first effort is narrowing is to overlook the fact that it is intended to be but one small part of the student's total intellectual life.

Chapter 11

TIME SPAN OF GRADUATE STUDY

This chapter is concerned with the length of time involved in the education of economists. Data are presented on the periods of study prescribed for advanced degrees in economics, and on the amount of time students actually spend in meeting the requirements for these degrees.

Credit Requirements

In most institutions, the minimal requirements for the master's degree in economics are stated in terms of a number of credit hours which might be earned by a student in one academic year of resident study. In universities on a semester basis, the number is usually around 24 hours plus a thesis or, if credit is given for the thesis, around 30 hours.[1] Many institutions require that at least a certain major fraction of these hours must be taken in economics. Most require also that the student achieve at least a certain minimal grade average (usually "B") or that only a limited amount of credit will be counted for any course in which the grade is lower than "B."

Similarly, the Ph.D. in economics is usually defined in terms of a course of study which can be completed in two academic years (including the year of study for the master's degree) plus a dissertation. The dissertation is thought of as the equivalent of one year's work; hence, the entire program for the Ph.D. is formally regarded as a three-year course. In some institutions, the requirement for the Ph.D. is stated in terms of a certain number of credit hours or courses, passed with at least minimal grades (usually "B") and a dissertation. In others, there is no formal requirement except the passing of comprehensive examinations and the completion of the dissertation. Even in these institutions, however, the program is conceived as a three-year course.

There is little criticism of these formal requirements for the master's degree and the Ph.D., and little disposition toward change—though a few professors think that some of their colleagues are a bit lax in their standards for grading graduate students.

Residence Requirements

Most institutions do not require students to be in residence during the entire period when they are earning the credits and writing the theses

[1] In institutions on a quarter system, the number of hours is adjusted accordingly.

demanded for the advanced degrees.[2] In practically all institutions, the minimal residence requirement for the master's degree is one academic year. Once this requirement is met, many permit the student to write his thesis *in absentia,* and some permit him to take limited amounts of extension or correspondence courses or to engage in independent study for credit while not in residence. Residence requirements for the Ph.D. are less standardized. Most institutions require two or three years. A few permit students to obtain credit for independent study *in absentia,* and all allow the dissertation to be written *in absentia,* once the residence requirements are met. There is apparently little criticism of existing *formal* residence requirements (except for provision about work *in absentia*) and no significant effort is being made to change them.

The important issues regarding residence relate not to the formal requirements, which are generally accepted as reasonable, but to the amount of time which candidates actually spend in earning advanced degrees in economics. This subject will be considered in the remainder of this chapter.

Actual Residence

Table 34 shows the percentage distribution of respondent graduate students in economics by length of period of residence between selected points in their graduate careers. The table also shows the mean and median periods of residence. According to these figures, there is considerable dispersion in length of residence. For the master's degree, residence varied from less than one year to 4 years, and for the Ph.D. from 2 to 5 or more years. The great majority of master's degrees were received, however, after one or two years of residence (column 1); the majority of preliminary exams were passed after two or three years of residence (column 4); and the majority of Ph.D's were received after three or four years of residence. As indicated in the table, the mean period of residence prior to the master's degree was 1.5 years, prior to the preliminary examination 2.5 to 2.9 years, and prior to the Ph.D. 3.7 years.[3]

The formal residence requirements of most institutions would call

[2] I did not explore the complicated question of the treatment of students who transfer from one institution to another. Hence, the discussion of residence refers to those students who do all their graduate work at one institution.

[3] A study of the actual periods of residence of graduate students who received the Ph.D. from the University of Minnesota indicated that those who received Ph.D.'s in economics during the pre-war years 1936-37 to 1940-41 had been in residence at Minnesota on the average for 13 quarters, and that those receiving degrees during 1941-42 to 1947-48 had been in residence on the average 14 quarters. Figures for other fields indicated that this average was about typical for all the departments of the University. University of Minnesota, Graduate School, *Graduate Faculty News Letter,* Dec. 9, 1949 (Mimeographed).

TABLE 34.—RESIDENCE OF GRADUATE STUDENTS BETWEEN SELECTED POINTS IN GRADUATE CAREERS[a]

Approximate number of years in actual residence	Bachelor's to master's	Master's to preliminary examination	Preliminary to Ph.D.	Bachelor's to preliminary	Bachelor's to Ph.D.
Former Graduate students who received advanced degrees in 1939–40 and 1949–50[b]					
Less than ½	—	25%	37%	—	—
½	2%	3	2	—	—
1	52	23	34	6%	—
1½	5	4	5	1	—
2	35	30	16	34	11%
2½	2	1	1	8	6
3	4	9	3	27	34
4	—	2	2	17	28
5 or more	—	3	0	7	21
Total	100	100	100	100	100
Mean	1.5 years	1.5 years	0.9 year	2.9 years	3.7 years
Graduate students in residence 1951–52[c]					
Less than ½	—	28%		—	
½	4%	11		2%	
1	42	15		—	
1½	10	29		23	
2	36	13		26	
2½	6	2		15	
3	1	2		19	
4	1	—		13	
5 or more	—	—		2	
Total	100	100		100	
Mean	1.5 years	1.0 year		2.5 years	

[a] These data were derived from responses to a request for "dates in residence." The data presented are approximate because many respondents did not make clear whether they had attended summer sessions or whether they had been in residence during the whole of any specified academic year. A "year" should be interpreted, therefore, loosely as one academic year or as one academic year plus one summer. No differentiation was made between full-time residence and residence during which the student carried less than a full-time load.

[b] Schedule X: 218 respondents. Comparison of data for the 1939–40 group and the 1949–50 group revealed no significant differences.

[c] Schedule IX: 140 respondents.

for one year prior to the master's degree and two or three years prior to the Ph.D. Evidently, then, actual residence is significantly longer than the requirement. This is accounted for in part by the fact that many students are engaged in part-time work during their residence, but it is also due to the inability of many students to prepare themselves in the minimal allotted time.

Most graduate professors apparently are well-satisfied with the actual periods which their students spend in residence—despite the fact that it is typically longer than the minimal requirements. When asked to express their opinions on the amount of time candidates typically spend in residence (as distinct from formal residence requirements), their replies were as follows:

	Master's candidates[4]	*Ph.D. candidates*[5]
too long	10%	14%
too short	2	12
about right	77	63
uncertain	6	10
no answer	5	1
Total	100	100

In commenting on this subject, several respondents indicated that the residence of doctoral candidates is too short in that too many dissertations are prepared *in absentia*.

Elapsed Time

A subject on which there is somewhat greater concern, and in my opinion should be even more concern, is the amount of time that elapses between the beginning and the completion of graduate work. Table 35 presents data on this subject for respondent graduate students, of whom some were in residence in 1951-52 and others received degrees earlier. "Elapsed time" is defined as the length of time between two points in the student's academic career. During part of this time he may not have been engaged in graduate study at all, or he may have been studying only on a part-time basis. Therefore, "elapsed time" is not a measure of the time actually spent in climbing from one point to another on the ladder, but the interval that occurs between these points for whatever reason. Elapsed time is significant in that it indicates the amount of delay, lost motion, uncertainty about career objectives, etc., which, together with the time actually spent in study, determines the age at which candidates reach various points on the ladder. As shown in table 35, the range of elapsed time between each of the successive points is surprisingly great. A substantial minority of students pass from one step to another in about the time theoretically required, namely, one year from bachelor's to master's, one year from master's to preliminary, and one year from preliminary to Ph.D. But there are few students who go the entire distance from bachelor's to Ph.D. in the theoretical three years. A majority take 10 years or more.

[4] Schedule IV: 61 respondents.

[5] Schedule VII: 59 respondents.

TABLE 35.—ELAPSED TIME BETWEEN SELECTED POINTS IN GRADUATE CAREERS

Approximate number of years of time interval	Bachelor's to master's	Master's to preliminary examination	Preliminary to Ph.D.	Bachelor's to preliminary	Bachelor's to Ph.D.
Former graduate students who received advanced degrees in 1939–40 and 1949–50[a]					
Less than 1	1%	27%	7%	—	—
1	29	19	22	3%	—
1½	2	3	1	—	—
2	29	11	28	15	1%
2½	1	—	2	2	—
3	8	5	17	13	3
4	6	3	5	8	9
5	4	3	3	4	5
6–7	7	9	4	13	11
8–9	7	12	7	13	16
10–13	6	8	4	20	34
14 or more	—	—	—	9	21
Total	100	100	100	100	100
Mean	3.3 years	3.6 years	3.2 years	7.2 years	10.0 years
Graduate students in residence 1951–52[b]					
Less than 1	1%	30%			
1	30	14			
1½	5	14			
2	21	19			
2½	4	2			
3	11	5			
4	4	2			
5	3	—			
6–7	5	2			
8–9	8	2			
10–13	8	10			
14 or more	—	—			
Total	100	100			
Mean	3.5 years	2.4 years			

[a] Schedule X: 218 respondents.
[b] Schedule IX: 140 respondents.

The same phenomenon is also illustrated by data on the ages at which graduate students reach each point on the ladder. These are shown in table 36. The average age at the time of receiving the master's degree was about 27 years, and the average age at receipt of the Ph.D. about 32 years.

These figures on both elapsed time and age are confirmed by other

studies. A University of Minnesota study[6] indicated that the elapsed time between the bachelor's and the Ph.D. for economics students at that institution was about 8 or 9 years and the average age at time of receiving the Ph.D. about 33 or 34 years. These figures were somewhat higher than the average for students in other fields. A study of economics students at Columbia University[7] revealed the following average intervals of elapsed time:

A.B. to M.A.	3.0 years
A.B. to Orals	5.8
A.B. to Ph.D.	10.6
M.A. to Orals	2.8
M.A. to Ph.D.	7.8
Orals to Ph.D.	4.1

TABLE 36.—AGE AT SELECTED POINTS IN GRADUATE CAREERS

	Age of former graduate students who received advanced degrees in 1939–40 or 1949–50[a]			Age of graduate students in residence 1951–52[b]	
	At bachelor's	At master's	At Ph.D.	At bachelor's	At master's
20 or less	7%	—	—	9%	—
21	26	1%	—	18	—
22	28	7	—	20	7%
23	8	16	—	13	5
24	10	13	1%	7	15
25–26	12	21	9	16	28
27–29	6	24	19	8	23
30–34	3	13	38	9	10
35 or over	—	5	33	—	12
Total	100	100	100	100	100
Mean[c]	23.0 years	26.6 years	31.9 years	24.0 years	27.4 years

[a] Schedule X: 218 respondents.
[b] Schedule IX: 140 respondents.
[c] The average increase in age between various points does not agree precisely with elapsed time as shown in table 35 because of difficulties of interpreting data on elapsed time. The data on ages are more reliable.

A tabulation by Dr. Lewis A. Froman covering the period 1929-1940 indicated that the average elapsed time between bachelor's and master's varied for the several years from 2.3 to 3.0 years; between master's and doctor's from 4.2 to 5.5 years; and between bachelor's

[6] *Graduate Faculty New Letter, op. cit.*

[7] J. W. Angell, *Occupations and Salaries of Former Graduate Students* (mimeographed), June 20, 1951. This study covered students who received degrees during the period 1931-1950. The averages do not include a few extreme cases.

and doctor's from 8.4 to 9.9 years.[8] Professor George J. Stigler has presented data on elapsed time between the B.A. and Ph.D. for students in various fields at Columbia and Harvard covering selected years between 1900 an 1940. These figures indicate an average interval in 1940 of about 9 years at Harvard and 13 years at Columbia for students in the social sciences.[9]

Although World War II undoubtedly had an influence in lengthening the average elapsed time, the effect was apparently not pronounced. Factors causing delay were compensated in part by the veteran's benefits which encourage early completion of graduate work. Aside from certain irregularities caused by the war, there has been no pronounced trend in the average elapsed time—at least since 1930. Professor Stigler's data indicate, however, that the average interval between B.A. and Ph.D. at the two institutions he studied was considerably less before World War I than since.

TABLE 37.—SUMMARY OF DATA ON RESIDENCE AND ELAPSED TIME
(arithmetic means expressed in years)[a]

	Theoretical time	Actual residence	Elapsed time	Age at completion of step
From bachelor's to master's	1			
Former graduate students		1.5	3.3	26.6
Graduate students in residence 1951-52		1.5	3.5	27.4
From master's to preliminary	1			
Former graduate students		1.5	3.6	
Graduate students in residence 1951-52		1.0	2.4	
From preliminary to Ph.D.	1			
Former graduate students		0.9	3.2	31.9
From bachelor's to preliminary	2			
Former graduate students		2.9	7.2	
Graduate students in residence 1951-52		2.5		
From bachelor's to Ph.D.	3			
Former graduate students		3.7	10.0	31.9

[a] Data from tables 34, 35, and 36.

[8] "Graduate Students in Economics, 1904-1940," *American Economic Review*, Dec. 1942, p. 823.

[9] *Employment and Compensation in Education*, National Bureau of Economic Research, Occasional Paper No. 33, New York, 1950, p. 37.

Summary of Data

The data on residence and elapsed time are summarized in table 37. This table shows the theoretical time required between various points in the graduate program, the actual average periods of residence, the average elapsed time, and the average ages of candidates at the completion of each step. As the table indicates, the period of actual residence exceeds the theoretical time. The average residence for the master's degree is 1.5 years or one-half year more than the theoretical time. This is accounted for in part by the fact that at some institutions the master's degree is awarded after successful completion of the preliminary examination. However, the difference is due mainly to the fact that many students are in residence for more than one year before completing the requirements for the master's degree. This has become the typical situation at many institutions. The residence from master's to preliminary for former students also exceeded the theoretical one year, but for the 1951-52 group, the average was equal to one year. The residence from the preliminary to the Ph.D. is slightly less than the theoretical one year. This is due to the fact that many students write all or part of their dissertations *in absentia*. The fact that the average is so close to one year (and that many dissertations are written partly or wholly *in absentia*) suggests that the task of preparing a dissertation ordinarily requires substantially more than one year. Altogether, the average residence from the bachelor's to the Ph.D. is 3.7 years or 0.7 of a year in excess of the theoretical 3. When it is considered that the average residence is 3.7 years and that many students do considerable work *in absentia*, it must be concluded that the total *work* time required for a Ph.D. is probably on the average more than 4 years. The elapsed time exceeds the theoretical time by threefold.

Concluding Comments

The question posed by the above facts is whether the elapsed time—especially for the Ph.D.—is too long. A substantial number of graduate professors believe that it is; on the other hand, a somewhat larger number do not find the elapsed time excessive. The responses on the elapsed time for the Ph.D. were as follows:[10]

too long	34%
too short	3
about right	41
uncertain	7
no answer	15
Total	100

[10] Schedule VII: 59 respondents.

The arguments favoring the long period before completion of graduate work pertain to maturity and experience. It is said that students gain more from graduate study and perform more satisfactorily if they have substantial work experience and maturity. This they cannot have if they pursue graduate study uninterruptedly after college. There is undoubted validity in this argument. If one were to outline the ideal sequence of events in the life of a doctoral candidate, one might well prescribe some work experience prior to completion of the degree. In the preceding two chapters, I have already pointed out the advantage of experience in research and teaching and have recommended that as many students as possible serve as research and teaching apprentices. In many cases, it might be desirable for some of this experience to be obtained on the job away from graduate school. But there is a genuine question as to how much experience and consequent delay before taking the Ph.D. is necessary or desirable—all things considered.

The answer to this question depends in part on one's conception of the Ph.D. If the Ph.D. is to be reserved only for mature persons who have been seasoned by years of practical experience, then the long period of gestation is justified. This concept of the Ph.D. was undoubtedly encouraged during the period when the degree was becoming a union card for college teaching and when, therefore, the graduate student body contained many older college teachers bent on acquiring the approved credentials of their profession. If, on the other hand, the Ph.D. is regarded not as something to be awarded in middle life after some of the most productive years have passed, but as something to be given to a young person who has mastered the basic knowledge and techniques of economics and who shows ability and promise, then the argument for the long period becomes much less persuasive. I lean strongly toward the latter concept of the degree. I feel that although a year or two of experience is undoubtedly most useful, further delay is usually undesirable and in many cases disastrous.

The explanation of the long period of elapsed time is almost always one or more of the following (aside from military service): (1) delay in the choice of a career, (2) inadequate prior preparation for graduate study, (3) financial necessity, (4) procrastination, and (5) overly ambitious dissertations. No one of these can be strongly defended.[11] I have heard of few candidates who deliberately delayed the Ph.D. for any extensive period in order to gain experience—or even who were advised to do so.

[11] A critic suggests that another reason for slowness is the tendency for the adviser (and the rest of the faculty) to insist that the student take all courses that would aid his examination performance before permitting him to stand for his preliminary examination. He adds "It's not all the student's fault. The preliminary should be taken as early as possible—after only the basic minimum of course work is taken."

It seems to me that the frequent delay in the choice of a career is due partly to faulty recruitment policies. As pointed out in Chapter 6 efforts should be made to achieve earlier recruitment and selection of students who are fitted to become professional economists. It is true that not every student can be expected to find himself before the end of his undergraduate years. Yet there is obviously much less uncertainty in the case of those who enter law, medicine, architecture, engineering, or chemistry than is true of those entering economics. It is up to the economic profession to do a better job of recruitment and selection of students for graduate study.

The problem of inadequate prior preparation has been discussed in Chapter 6. That this is a frequent cause of delay in the completion of a doctorate can hardly be doubted.

The financial problem is always present and will undoubtedly cause undesirable delay for many students. Yet this problem is less urgent for younger students whose family obligations are likely to be minimal than for older students. Therefore, better and earlier recruitment and selection will help in this respect. Other partial solutions are: (1) more funds for financial support of graduate students and (2) use of existing funds to see fewer students through to the degree—rather than more students only through the preliminary examination.

The frequent practice of writing dissertations *in absentia* has multiple disadvantages. The dissertation lacks adequate supervision and the project tends to be pursued as a secondary chore added to a regular job. Under these conditions the student can do justice neither to his job nor his dissertation. As a result frustrations develop which dim the creative spark not only for the immediate project but also for future scholarly work. The situation is even worse for those students whose course work is interrupted by financial necessity. Those who receive the degree after intermittent periods of residence have gained something less than those who have been able to pursue an integrated plan of study without interruption. It is noteworthy that the frustrations and divided responsibilities resulting from the delay and the work *in absentia* occur during the student's most productive years—namely, during the third and fourth decades of his life.

Little need be said about procrastination as a cause of delay. It is surely of frequent occurrence. Graduate advisers should be watchful and should press those students to finish who show signs of putting things off unnecessarily.

The overly-ambitious dissertation is a frequent cause of delay. This again raises the question of the nature and purpose of the dissertation. This has been discussed in Chapters 4 and 9.

The basic issue is this: should the dissertation be a *magnum opus*

which represents an important and extensive contribution to the field? Or should it be a piece of research, suited to the abilities of a young scholar, which will acquaint him with subject matter and technique and will provide a test of his ability to carry on more advanced scholarly work in the future? My judgment leans to the latter alternative. I believe that the scale and scope of a dissertation should be such that a student could be reasonably expected to complete it in a year (or at most two years) of concentrated work. The dissertation should not be thought of as a final scholarly product representing the most advanced work of which the student will ever be capable, but rather as a first major effort which may be developed further in later years—or which may be the first of a long series of research enterprises to be conducted by the student over his working lifetime.

The long time-period of most graduate careers is a significant cause of mortality among students. As time goes on without completion of the degree, students become immersed in their work, acquire increasing financial responsibilities, and become discouraged. The result is hundreds, perhaps thousands of partly finished doctorates, and a profession in which many of the practitioners have not had adequate academic training or the discipline and experience of carrying on a solid piece of independent research. I would not argue that in all cases this is disastrous or even undesirable. But the profession, collectively and individually, would be more productive and more competent if a greater proportion of the practitioners had been persuaded, or had been able, to find a way to complete their graduate programs.

Chapter 12

THE GRADUATE DEPARTMENT OF ECONOMICS

In this chapter, graduate education in economics will be considered from the point of view of the qualities and characteristics of the departments in which it occurs. I shall raise issues and offer tentative suggestions regarding the staff, facilities, organization, and opportunities afforded by graduate departments of economics. Whereas earlier chapters have dealt with various aspects of the educational process, this one will be concerned with the departments in which the process takes place.

I approach this subject with extreme diffidence because I am fully conscious of the fact that there is by no means a necessary correlation between the physical characteristics of a department of economics and the quality of the education conducted therein. A large budget, a distinguished staff, and the most complete facilities do not *necessarily* make a good department. While Mark Hopkins on the end of a log or Socrates conversing in the public square may not represent the ideal educational situation for all purposes, yet excellent education can sometimes be had with minimal staff and facilities. Nevertheless, my discussions, observation, and thinking on the problem all have led to the conclusion that the nature of the department does make a difference and that substantial costs are involved in providing graduate education of high quality.

A Graduate Department

In all but a handful of universities undergraduate and graduate instruction in economics are closely associated. The same staff and the same physical facilities are utilized for both purposes. This arrangement is advantageous in terms of cost. In addition, it offers the positive advantage of providing opportunities for graduate students to become apprentice teachers. In many institutions, however, there are problems involved in the relationship between the graduate and undergraduate phases of instruction in economics. In some, the emphasis is on undergraduate instruction and the graduate department is merely an incidental appendage which supplies a few assistant teachers and occupies some marginal time of the regular staff. In others, the emphasis is upon graduate instruction and research and the undergraduate part of the program is neglected. In some of these latter the alumni have complained bitterly that the undergraduate student has become the forgotten man of higher education.

This is not the place to consider these large issues. It is worth noting, however, that there are important differences between undergraduate and true graduate work—differences in content, in objectives, and in spirit. Graduate work exists for the purpose of training men to become scholars. The students are relatively mature persons who have chosen their careers and are ready to engage in serious specialized study. They need opportunity for independent creative work of a type that is congenial to their interests and appropriate to their maturity. They need to break away from undergraduate ways and attitudes. This clearly calls for a fairly distinct separation of the graduate from the undergraduate program. There is a real question as to whether adequate graduate instruction can be offered in institutions where it can be only an incidental appendage to an undergraduate program.

Where graduate instruction is given, staff time should be specifically allocated to this activity. There is need for the creation of an environment, a student body, a set of courses, a set of practices, and perhaps some facilities which are uniquely *graduate* and which together can be identified as a graduate program. At some institutions now offering advanced degrees (or planning to offer such degrees) these conditions do not prevail. While these institutions may turn out many good students, there is a serious question if they are providing as good an environment as they should for the development of these students.

Any institution offering graduate work should allot a distinguishable and fairly definite amount of staff-time, courses, funds, and facilities to the graduate program. These things, together, might be thought of as the *graduate department of economics*.[1] I do not mean to imply by this that the graduate department should necessarily be organized as a separate administrative unit, or that its staff members devote themselves exclusively to graduate work. I mean only that there should be an identifiable graduate program sufficiently distinguishable from the undergraduate program to have its own institutional "personality" and its own *esprit de corps*. In the remainder of this chapter, I shall consider the question of what characteristics and qualities such a "graduate department" should have.

Graduate Courses

In general, courses for graduate students should be operated separately from those for undergraduates. While I should not wish to carry

[1] In most universities the graduate and undergraduate parts of economics departments are at least conceptually distinguishable in that the former is a part of the graduate college and the latter a part of the liberal arts college. I am suggesting that they should be actually distinguishable.

this recommendation to the extreme of suggesting that graduate students should never be permitted to take undergraduate courses or undergraduate students graduate courses, yet on the whole it seems fairly clear that graduate work should involve a break with undergraduate standards, methods, objectives, and attitudes. One of the best ways of making this break is to conduct separate classes of graduate caliber.

The mere provision of separate classes is, however, no guarantee that the desired kind and level of instruction will be achieved in graduate courses. Many professors have reported that they thought the standards in graduate courses were lower than those in undergraduate courses. In undergraduate courses, there is a kind of impersonality, spirit of competition, and definiteness of subject matter which makes for rigor and objectivity in the evaluation of students. In graduate courses, small numbers, personal acquaintance with students, desire to maintain enrollments, and difficulty of applying objective standards all militate against rigor and high standards. It is said that sometimes an "A" or "B" in an undergraduate course actually means a higher level of accomplishment than the same grade in a graduate course. Thus, the suggestion that graduate students should on the whole be taught separately is based on the assumption that the graduate courses would be more rigorous and demanding than corresponding undergraduate courses.

A Ph.D. program of the type suggested here (conducted separately from the undergraduate program) would involve a substantial staff load. It would require the offering of no less than 16 graduate courses and seminars of semester length.[2] These would include perhaps three or four courses in economic theory, one in history of economic thought, two in economic history, two in statistics, and at least seven or eight in other fields. If any considerable range of choices were to be permitted, even more courses would be necessary. But the graduate staff load also includes research and the supervision of theses. This part of the load should be specifically included as part of the official duties of staff members. These activities should not be considered merely extra chores to occupy spare time. Many department heads and graduate deans with whom I discussed these matters feel that staff members should be allotted time for research and for supervision of theses as part of their official teaching load. They feel that the active supervision of 5 or 6 theses should be considered the equivalent of one course. Altogether, these calculations suggest that the provision of a genuine graduate program is a very expensive undertaking in terms of staff requirements.

[2] Perhaps only 8 courses and seminars if only the master's degree is awarded.

Staff

The most important resource of any graduate department of economics is, of course, the staff. This raises the issue as to what ought to be the characteristics of such a staff, both individually and collectively.

The first question is this: Ought there to be certain minimal standards for eligibility of a staff member for graduate teaching in economics? Some universities try to set formal standards for admission of faculty members to status in the graduate college. These standards include degrees, experience, publications, etc. I doubt the efficacy of these standards—at least when they are administered by committees drawn from many fields. The standards tend to be expressed in terms of degrees, experience, seniority, and number of publications rather than ability to lead graduate students toward professional competence. Unquestionably degrees and experience are desirable. But I doubt that this condition should be applied to *every* member of a graduate staff. I even question the frequently stated proposition that *every* member of a graduate staff should have had research experience or should be actively engaged in research. It seems to me that the standards for a graduate staff should be applied not to every individual but rather to the entire staff viewed as a group organized to achieve certain purposes. Such a staff might well include individuals who would not meet some of the more conventional academic standards.

As we look at the staff as a whole, however, we *can* say that it should meet certain minimal standards. It should be composed largely of persons of maturity, experience, scholarly accomplishment, and *currently* active research interests. It should also contain a sufficient number of well-known and distinguished scholars to give the department status in the eyes of the profession-at-large. Without this, it cannot give its students confidence that they are studying with men of stature, it cannot give these students support in their later professional careers, and its degrees will be of inferior value in the labor market.

Diversity of Staff

The staff should have *diversity* with respect to (1) substantive fields of specialization, (2) theoretical vs. empirical interests, (3) scientific vs. policy interests, and (4) academic vs. practical experience. I shall comment briefly on each of these aspects of diversity.

First, a sufficient number of substantive fields should be represented by staff members of graduate caliber to enable students to obtain authoritative training in (1) the common core areas of economic theory, economic history, history of economic thought, and statistics, and (2) in at least three or four other major areas of economics.[3] In

[3] If only the master's degree is awarded, the number of areas outside the core need be, at a minimum, only one or two.

view of the importance of economic theory and the wide range of this field, it is possible that more than one staff member in this area would be essential.[4] It is not necessary or desirable, however, that every specialty within economics be represented. The attempt to do so may detract from rather than enhance the quality of the staff. Moreover, it is entirely legitimate for departments to concentrate more heavily in those fields in which they are able to achieve distinction. But such specialization should not be achieved at the expense of inadequate coverage of the core fields and of a sufficient number of other fields to permit breadth of training. In any case, good departments will be more than a collection of technicians and specialists. They will contain men of broad interests and philosophical predilections.

Second, the staff should contain persons whose interests are primarily theoretical, some whose interests are primarily empirical, and others who combine these two approaches. Many existing departments have not achieved balance in this respect. Some are composed almost exclusively of staff members interested in theory, others (fewer in number) are composed almost solely of men whose interests are primarily empirical. I believe that in many departments steps should be taken, in their long-run planning, to correct these imbalances.

Third, any graduate staff should include persons who are interested in the practical application of economics to problems of public and private policy, but at the same time should include persons who approach economics from the point of view of pure science. I believe that considerable imbalance exists in many departments in this respect.

Fourth, any graduate staff should contain persons who have had practical experience in government *and* persons who have had practical experience in business, labor organizations, etc. While it is not necessary to include some staff members who have "carried a precinct or met a payroll," it is desirable to include persons who look at economics from the perspective of important practical affairs of which they have intimate knowledge. Fortunately, the number of academic economists who have had such experience is much larger today than it was a generation ago. This has been one of the contributions to our profession of the New Deal and of World War II. There is also an increasing tendency for academic economists to carry on part-time consulting and other professional activities in government and business while retaining their university connections. Within limits this is wholesome. But it is a practice fraught with potential abuses. It has been reported that some staff members devote so much time to outside activities that they do not give adequate attention to their teaching and are unable to give time to students. Also, it is said that some staff members devote so

[4] It would be desirable for all staff members to be conversant with theory.

much of their energy to programmatic and *ad hoc* research connected with their consulting functions that they no longer engage in fundamental research designed to advance basic knowledge in the field. This problem is said to be even more serious because the heaviest demands from the outside are for the services of some of our most distinguished and capable economists. It has even been said that whole departments are partially undermined by the outside pressures on their staff members. In my judgment this is a serious problem for the entire profession. While outside work is undoubtedly valuable, it should not become so great a preoccupation as to impair the educational and research programs of whole departments. The problem has become serious partly because the services of economists have been in great demand—and because academic economists have felt a responsibility to serve when they would help. A contributing factor has been the low salary scales in universities which have encouraged economists to take opportunities for extra income even when their intellectual interests might have dictated otherwise. These low academic salaries, which are often below the outside competitive market for economists, are explained partly by the necessity of keeping salaries in line with those of professors in fields having fewer alternative opportunities. One wonders if universities might not be wise, from the long-run social point of view, to pay salaries nearer to the competitive level for persons whose outside market value exceeds their academic salaries. At any rate, the objective is to build staffs in which there is reasonable contact with the outside world and thus to bring authentic knowledge of worldly issues to teaching and research in economics.

In the above discussion I do not mean to imply that diversity should take precedence over all other goals in building a graduate economics faculty. Excessive preoccupation with diversity would almost surely result in mediocrity. In the interests of balancing up the team, more competent scholars would often be passed over in favor of second-rate men. Nevertheless, the need for diversity cannot be wholly ignored in staff policy. It is *one* important factor, though not the only one.

In discussing diversity, one is tempted to add a fifth respect in which a graduate staff should be diversified, namely, ideological orientation. It can be argued (1) that the safest antidote to ideological bias is a staff which includes persons having a variety of viewpoints, and (2) that students should be under the tutelage of a group of able persons representing a wide range of ideological positions and should be free to develop their own views in an *environment* which is ideologically neutral. But there are grave dangers in too meticulous concern about "balance" in this respect, especially when this involves weighing ideological considerations in the appointment of individual staff mem-

bers. It would be intolerable if individual academic appointments were made on the basis of applicants' political views rather than on the basis of professional competence. Therefore, it would seem a sounder procedure to achieve ideological diversity as a by-product of diversity with respect to special field, methodological approach, experience, and educational origin rather than by scrutinizing each candidate's beliefs. If genuine diversity in all these other respects is achieved, the probabilities are high that reasonable ideological diversity will also be achieved.

In order to achieve a desirable degree of diversity in the respects mentioned, a graduate department should include a substantial number (at least 6 or 8) staff members who devote substantial amounts of time to graduate teaching and related activities.[5] The program should be arranged so that all students actually have contact with as many of the staff members as possible. For this purpose the prevalence of year-long graduate courses with one professor should be examined with a view to having each student study for shorter periods with a larger number of staff members. This would help to prevent tendencies of students to become disciples of particular professors. Such a relationship usually involves slavish acceptance by the student of the professor's ideas and prevents the student from achieving genuine intellectual independence.

The requirement of diversity calls for the selection of staff from varied sources. There is no place for inbreeding on a graduate faculty of economics. Additional diversity can be obtained by occasionally employing visiting professors who can be useful in introducing new ideas and approaches and also in bringing an outsider's evaluation of existing practices.

Student Body

A graduate student body of small numbers presents certain advantages. With small numbers, it is possible to achieve close personal relations between students and staff members, and to give individual attention to students. A small student body also contributes to friendliness and informality. But smallness in number of students can be overdone. There are important educational advantages, even apart from considerations of cost, to be attained through larger numbers of students. Many professors feel that graduate enrollments of 10 or 20 or 30 are small for the most effective work. Many feel that an optimum graduate enrollment would be perhaps 50 or more.

There are many advantages of larger size: (1) graduate classes (separate from undergraduate classes) can be justified, (2) such classes

[5] The number might be somewhat less if only the master's degree is awarded.

can have enough students (including at least a few very good ones) to permit active group discussion, inter-stimulation, and competition, (3) accurate evaluation of individual students is possible since student accomplishments can be rated in terms of averages and dispersions for large numbers, (4) a kind of impersonal relationship between teachers and students can be established that makes for objectivity in the judgment of students and eases the burden of failing them when it is necessary to do so, (5) larger numbers helps to create an environment in which students learn from each other through informal discussions outside the classroom, (6) with larger numbers there is less concern about maintaining or building enrollments and hence standards can be more rigorously maintained, and (7) a larger student body is likely to be more diverse as to interests, background, geographic origin, etc., and therefore more stimulating. These are important and persuasive considerations. They point toward the conclusion that a graduate program can seldom be conducted effectively with a handful of students and that there are genuine economies of scale to be had in terms not only of cost but of *educational* effectiveness.

At the other extreme numbers can become too large unless staff and facilities can expand proportionately. With too many students, the evils of large classes and excessive impersonality begin to appear. And there may be disadvantages to *very* large size even if a high ratio of staff and facilities to students is maintained.[6] From many discussions with teachers and administrators, I have gathered that graduate classes and seminars of perhaps 5 to 15 students are considered optimal, and that classes which lie very far outside these limits are not likely to meet the educational ideal.

Facilities

The minimal facilities for graduate work include an adequate library[7] and necessary equipment for statistical research. In Chapter 10, I suggested the desirability of a research environment in which various kinds of investigations are being actively pursued. This presupposes some clerical staff and facilities for collecting, tabulating, and analyzing data. Other facilities which are highly desirable include office space for students and common rooms where graduate students and faculty may fraternize. The latter are found effective as a means of stimulating extra-curricular discussion and group morale.

[6] In discussing the relative advantages of various sizes of graduate student bodies, it was assumed that admission standards and student requirements are held constant. If large enrollments are attained by lowering entrance and other requirements, the above arguments do not apply.

[7] See Robert B. Downs, "Leading American Library Collections," *The Library Quarterly*, July 1942.

A Note on Economies of Scale in Graduate Education

As indicated earlier, graduate training is sometimes conducted as an incidental by-product of an undergraduate program: graduate students attend advanced undergraduate classes, carry on independent study, and write theses under the guidance of individual professors for whom the chore of supervision is considered an uncompensated addition to an already full teaching load. Under these conditions, graduate education is virtually without monetary cost. Indeed if it provides a supply of assistant teachers who receive less than the going rate for their services, it may actually show a profit. If, on the other hand, a separate graduate program of the type recommended is to be provided, the cost is substantial.

In this section, I shall try to indicate the order of magnitude of the cost of a minimal graduate program and the relation of the graduate enrollment to this cost. In so doing, I shall make several arbitrary assumptions about the nature of the program and of the student body: (1) that the graduate program is minimal in scope and range of offerings, including only 16 one-semester graduate courses and seminars of which 8 are offered each semester; (2) that the standard teaching load for staff members is three courses; (3) that the average annual salary per staff member is $7,000; (4) that one-half the students are first-year students, all of whom are required to write master's theses, one-quarter are second-year students, and one-quarter are third-year students all of whom are required to write doctoral dissertations; and (5) that the supervision of five theses or dissertations is considered equal to one course in the teaching load of staff members.

The fixed costs will include staff salaries for teaching courses and seminars and for conducting research, and the outlays for a library and other physical facilities. If 8 courses are offered each semester, this will require 2-⅔ staff members (full-time equivalent) at a cost of $18,700. On the assumption that a substantial amount of research should be in progress in a graduate department, I shall suppose that the equivalent of 2 full-time staff members will be assigned to research at a cost of $14,000. Library and other facility costs assignable to the graduate program I have set arbitrarily at $5,000 which is surely a very small figure. The total of these fixed costs is $37,700.

The cost of thesis supervision is variable depending on enrollment. With the distribution of students by classes as assumed, one-fourth of them would be writing a doctoral dissertation each year and another one-fourth would be writing a master's thesis each semester. At any given time, the number of theses and dissertations in progress would be half the number of students. Since five theses or dissertations are

considered equal to one course, 15 of them would require the equivalent of one full-time staff member at $7,000.

With these hypothetical data, the relationship between enrollment and cost would be as shown in table 38. The right-hand column also shows the effect of enrollment on the number of students per class on the assumption that 8 graduate courses are offered each semester.

TABLE 38.—HYPOTHETICAL RELATIONSHIP BETWEEN GRADUATE ENROLLMENT, COST PER YEAR, AND SIZE OF CLASSES

Enrollment	Total fixed cost	Total variable cost	Total cost	Average cost per student	Average number of students per class
10	$37,700	$ 2,333	$40,033	$4,003	1.3
20		4,667	42,367	2,118	2.5
30		7,000	44,700	1,490	3.8
40		9,333	47,033	1,176	5.0
50		11,667	49,367	987	6.3
60		14,000	51,700	862	7.5
70		16,333	54,033	772	8.8
80		18,667	56,367	705	10.0
90		21,000	58,700	652	10.3
100		23,333	61,033	610	12.5
150		35,000	72,700	485	18.8

In view of the large amount of fixed cost (with constant variable cost) in the assumed program, average cost declines sharply as enrollment increases; and in view of the assumption that the number of courses remains constant, the average size of classes increases as enrollment increases. Average classes do not exceed 10 students until the enrollment reaches 80. Therefore, assuming that classes averaging 10 students each are not too large, it could be argued—both on educational and financial grounds—that a desirable enrollment might be 80 or more.

The hypothetical case illustrated in table 38 is arbitrary and artificial. Its only purpose is to illustrate the effect of enrollment on cost and on educational effectiveness. Nevertheless, it casts doubt on the desirability of offering graduate programs when enrollments are very small, or of instituting graduate programs when the prospects of adequate enrollments are slight. When true graduate programs are offered for small numbers of students, the cost is exorbitant and the educational results not necessarily superior.

One may ask: Why do so many departments go into the graduate business on a small scale? The answer, I think, lies basically in the feeling that there is prestige for the university, the department, and the staff in the offering of graduate work. At some universities, depart-

ments have been urged to enter the graduate field by top administrators who hope to achieve greater standing for the entire institution in this way. Other institutions have entered the graduate field in a small way because of a desire to serve students of the immediate area who may not be able to afford to attend a more distant graduate school.

My general judgment on this subject, based on numerous conversations and on the considerations presented above, is that the best environment for graduate work, other things equal, is one in which the number of students exceeds perhaps 40. In cases where only the master's degree is given, the minimum that would seem desirable would be perhaps 30 students.

I have emphasized the disadvantages of small scale operation because that is the problem in most departments. At a few universities, especially since the war, departments of economics have achieved very large graduate enrollments running up to several hundred. A great deal of adverse criticism has been directed toward these departments. It is likely that this criticism was partly justified. Classes have been large, faculty loads of thesis supervision have been heavy, students have encountered difficulty in getting personal attention from professors, many graduate classes have been taught by junior personnel, and facilities have not expanded to accommodate the increased load. At present, however, graduate enrollments in these institutions are apparently declining, and the problem may be disappearing. But if overcrowding in these few departments should persist, stricter limitation of enrollment might be desirable.

Data on Staff, Enrollment, and Costs

One of the questionnaires used in this study requested information on graduate enrollments in economics and on the numbers and salaries of staff officially engaged in graduate instruction and/or research. Because of the difficulty of allocating staff-time between undergraduate and graduate activities, the data obtained were obviously very rough.

Nevertheless, these data point to general conclusions regarding student-staff ratios and instructional costs for graduate education in economics. Altogether, 37 departments, representing all sizes and types of institutions, provided information. The most notable conclusion from these data, as shown in table 39, is the wide variability of graduate departments with respect to enrollments, size of staff, student-staff ratios, and costs per student. The differences in scale of operation as shown by this table are not surprising, but the differences in cost seem so great as to suggest that some departments are wasteful in their expenditures on small numbers of students, and that others are devoting too little resources to graduate instruction. The limiting case of this

TABLE 39.—FREQUENCY DISTRIBUTION OF REPORTING GRADUATE DEPARTMENTS BY NUMBER OF STAFF MEMBERS, STUDENT ENROLLMENTS, STUDENTS PER STAFF MEMBER, STAFF COSTS, AND STAFF COSTS PER STUDENT[a]

Number of staff members officially engaged in graduate instruction and/or research	Number of departments	Number of staff members officially engaged in graduate instruction or research (full-time equivalents)	Number of departments	Number of students in residence 1951–52	Number of departments
0–3	3	1	4	0–9	4
4–5	2	2	8	10–19	12
6–7	9	3	6	20–29	6
8–9	11	4	3	30–39	4
10–11	3	5	4	40–59	3
12–14	4	6	5	60–79	4
15 or more	5	7–10	3	80 or more	4
		11 or more	4		
Total	37	Total	37	Total	37

Ratio: students to staff (full-time equivalent)	Number of departments	Staff cost per student: instruction only (in hundreds of dollars)	Number of departments	Staff cost per student: instruction and research (in hundreds of dollars)	Number of departments
3	4	1–2	4	1–2	2
4	5	3–4	9	3–4	6
5	5	5–6	6	5–6	4
6	7	7–8	2	7–8	2
7–8	3	9–10	5	9–10	7
9–10	4	11–15	4	11–15	6
11–15	4	16–20	6	16–20	5
16–20	3			21–25	4
20 or more	2			26 or more	1
Total	37	Total	36[b]	Total	37

[a] Schedule III: 37 institutions provided information on the subject out of 59 respondents.
[b] No information from one respondent.

latter tendency is represented by several institutions (not included in table 39) at which graduate instruction is conducted without any staff or staff costs—in the sense that no separate graduate classes are provided, no staff time is allotted to research, and the supervision of theses is handled by staff members as an extra chore over and above their full undergraduate loads.

There is wide diversity in the relation between student enrollment and staff costs per student. The several departments in any given en-

rollment class vary widely in size of staff and staff costs per student. For example, the staff in the four reporting institutions having enrollments between 30 and 39 students ranged from 2 to 12 persons (full-time equivalents). However, there is some correlation between enrollment and cost, as shown by the average costs for departments in various enrollment brackets (see table 40). In general, those departments with larger enrollments operate with higher student-staff ratios and with lower staff costs per student. That the differences in these averages are not greater is due to the fact that departments with small graduate enrollments tend to provide relatively less *separate* graduate instruction than departments with larger enrollments. Incidentally, the

TABLE 40.—RELATION OF STUDENT ENROLLMENT TO STUDENT-STAFF RATIOS AND COSTS PER STUDENT[a]

Number of students 1951–52	Number of departments	Average ratio of students to staff (full-time equivalent)	Staff cost per student: instruction only	Staff cost per student: instruction and research
0–9	4	4.7	$1,393	$1,610
10–19	12	5.1	1,021	1,459
20–29	6	5.2	972	1,219
30–39	4	5.6	602	875
40–59	3	9.6	423	659
60–79	4	10.4	340	568
80 and over	4	8.0	563	905
Total	37			
Average for the combined group		7.1	595	952

[a] For source, see table 39.

fact that the institutions with very large enrollments had a lower student-staff ratio and higher average cost per student than some of the middle-sized departments does not lead to the conclusion that graduate departments necessarily have a u-shaped cost curve. The relatively high cost for the large departments is explained by the fact that these are distinguished departments with high salaries, heavy expenditures for research, and large and varied staffs. As shown in table 40, the average staff cost per student for the 37 reporting institutions was $952.

I do not wish to draw any firm conclusions from these data. Yet I think they do suggest an unevenness in the cost and quality of graduate work in economics offered in various institutions. They also indicate that graduate instruction is expensive, especially when conducted on a

small scale. This, it seems to me, should give pause to those institutions which are contemplating entering the field, and also should raise questions at other institutions regarding the desirability of leaving the field. But these are big issues in which many factors besides cost and efficiency are often decisive.

Administrative Organization

The discussion thus far has referred to the department of economics as though there were only one such department in each university. This is, of course, far from the actual situation at many institutions. It is perhaps more common for graduate training and research in economics and closely related fields to occur within each of several administrative units. Among these are: (1) the department of economics, (2) the school of business, (3) the department of agricultural economics usually located in the college of agriculture, (4) the department or school of home economics, (5) the college of law, (6) the institute of labor relations, (7) various area study groups such as the Russian institute or the institute for Latin American studies, (8) the institute of international relations, (9) the department of industrial management in the college of engineering, (10) the division of industrial psychology in the department of psychology, and (11) other miscellaneous institutes, committees, commissions, task forces, etc., such as the institute of communications research, institute of public administration, division of social science research, or council on housing research. The purpose of this section is to consider the causes and consequences of this administrative fragmentation of economics.

Historically, the process of fragmentation began 50 or more years ago with the widespread organization of schools of business. In recent years, however, the process has apparently speeded up as literally hundreds of special agencies having connections with economics have been created. The resulting organization of the field is complex—some think chaotic. Economics, however, is not the only field in which this kind of fragmentation has occurred. Indeed, it is a widespread phenomenon, a marked characteristic of academic development in our time.

The administrative fragmentation of the field of economics may be explained in terms of several objectives or forces. First, it has occurred as a result of the effort of universities to mobilize their resources to deal effectively with a wide variety of social issues, particularly those having inter-disciplinary aspects. Many of the schools and institutes have grown out of the attempt to achieve a workable administrative structure for fruitful interdisciplinary relationships. The labor relations

institutes have been notable examples of this; even the business schools have important interdisciplinary aspects.

Second, the fragmentation has occurred as a result of efforts to meet the demands for various kinds of specialized training in agricultural economics, business, labor relations, international relations, housing, public administration, etc. While these instructional programs might have been carried on in conventional departments, it was thought that more practical or more realistic or more concentrated training might be given in a special administrative division.

Third, the fragmentation has occurred as a way of seeking favorable public relations through creating special autonomous units which would establish and maintain contacts with special interest groups such as labor, agriculture, or business. An incidental purpose has been to emphasize work in areas having news value and popular appeal because of a direct relation to important issues of the day.

Fourth, the creation of these special units has occurred as a device for raising money. Apparently, it has been easier to obtain funds for a special unit having an intriguing title and an assignment closely related to current issues than to finance the same work in the traditional departments. The foundations have almost certainly contributed to the fragmentation. A special situation has been the creation of separate departments of agricultural economics because of the availability of Federal funds for research and extension. The recent availability of Federal funds for contract research has also stimulated the further development of separate administrative units.

Fifth, these special units have been created to give scope to the ambitions of energetic academic promoters or to reduce friction between staff members with varying interests and points of view—especially to separate those with theoretical interests from those with more "practical" or "programmatic" interests. This last has been a particularly important force in causing the separation of business schools from economics departments. Those economists whose interests have been relatively theoretical have often not been congenial colleagues for those of a more practical turn of mind. The former are sometimes considered visionary, impractical, and radical by the latter; and the latter are sometimes considered crass and mundane by the former. These attitudes are evident in many institutions. I regret to say that in some, the economic theorists are accused of intellectual snobbery, and as a result there are strong anti-theoretical attitudes on the part of persons in the applied fields. In some institutions, the pressure to organize separate divisions has resulted from an effort to relieve students of the requirements (especially economic theory) of the economics department. This is one of the motives underlying the movement to offer a separate Ph.D.

in business administration and in agricultural economics. I have even heard the suggestion from a group of accountants that no student should be permitted to sit for the C.P.A. examinations unless he has been trained in a "school" of accountancy having a dean who reports directly to the president of the university.

What are the consequences of this fragmentation from the point of view of graduate education in economics? In my judgment, many of the consequences are undesirable. Perhaps important ends have been attained through this administrative cutting up of economics but I doubt if one of them has been improvement in the education of economists or in the progress of the discipline. There are several principal consequences. First, the development of economics has been uneven—some fields such as agricultural economics, business, or labor, upon which large funds have been lavished, have been elaborated in great detail by an army of specialists, whereas other fields like consumer economics or economic history have been given relatively little support.

Second, various types of economists, located in separate administrative units, have not been able to maintain as close communication with one another as would have been desirable. For example, the economics of the firm, as developed by economists, has been relatively out of touch with developments in the business or engineering schools; or the theory of wages has not always been informed by the knowledge of specialists in labor relations. Conversely, the students in business or labor relations have often lacked the benefit of developments in theory. It can be argued, of course, that administrative barriers can be surmounted by those who genuinely wish to keep up with developments throughout the field; I am convinced, however, that communication tends to be much closer when these barriers do not exist.

Third, the training of economists tends to be more highly specialized and narrower when it occurs in separate administrative units than when it occurs in a more comprehensive unit. Students in business, agricultural economics, labor relations, etc., are likely to acquire less than optimal breadth—even for successful professional work in these fields. Similarly, students of general economics will often receive a narrower training in a department stripped of the applied fields than in a more inclusive department.

Fourth, the specialized units tend to acquire close contacts with—and sometimes to be controlled by—the outside groups (especially business, agriculture, and labor) whose activities they are studying. This fosters ideological biases and leads to difficulties in maintaining academic freedom and scientific objectivity. Even the general economics department, when it has been divorced from the more practical aspects of

the field, probably tends to develop its own ideological biases. At least, those in schools of business often charge economists with biases toward government planning, deficit spending, etc. Staff members of some business schools have reported to me that they advise their students not to take work in the "radical" economics departments.

Fifth, the specialized units tend to command a large share of the funds available for economic research and thus starve the general economics department. There may also be a tendency among the institutes to engage in those kinds of research or other activities for which money can be raised without careful regard to the development of the entire field or to the progress of basic areas.

Sixth, as a result of the setting up of many administrative units, the urgent problems close to great public issues of the day are handled in the specialized units, leaving only the more general and theoretical areas—which are less related to practical issues—for the department of economics. This means that the department tends to lose touch with the real world. At the same time the specialized units lose contact with the discipline and the contributions of theory, and tend to become "unintellectual"—to quote one business school dean.

Seventh, the fragmentation of the field, by dividing the student body into several separate groups, sometimes prevents any of the administrative units from achieving the enrollments needed for efficient operation.

This is a strong indictment of the fragmentation which has become so widespread. Some of my critics think it an exaggerated indictment, as it may well be. It may be readily conceded that the problem does not exist in every university. In some institutions the fragmentation has been only skin deep—it has affected form, not substance. In some cases useful results have been achieved through the creation of new administrative units. In some institutions, the several administrative subdivisions have worked out well-balanced programs and harmonious relationships. Nevertheless, I maintain that there is a serious problem.

What is to be done about the administrative organization of economics? Perhaps nothing *can* be done. We may be at the mercy of great social and intellectual forces which are bringing about a revolution in the classification and relationship of various fields and sub-fields. Perhaps it is too much to expect that in a field as dynamic as economics we shall ever be able to crystallize an organizational pattern. Yet I believe there are certain principles which ought to govern in this matter. The basic problem is one of the relationship among substantive areas which at one time were considered to fall wholly or partly within economics. But the problem appears also in the relationship between the economics and other areas which have traditionally been assigned to other

fields, e.g., sociology, political science, law, psychology, philosophy, etc.

First, the integrity of the traditional field of economics should be protected so far as practicable, and no parts of economics should be removed to other administrative units unless the reasons for doing so are overwhelming. The burden of proof for so doing should be on those who propose the change, and adventitious circumstances or temporary expediency should seldom govern.

Second, in many cases, it will be possible to accomplish objectives by establishing *ad hoc* curricula or *ad hoc* research teams within departments of economics or through interdepartmental cooperation—rather than by organizing new administrative units. The problems have often been satisfactorily solved in this way. When, for purposes of public relations or money-raising, it seems desirable to create new administrative units, they should whenever possible be placed *within* rather than outside departments of economics.

Third, all economists in a university should be in communication with one another. This is facilitated by having their offices in close proximity, by their having a formal connection with the economics department, and by providing seminars and discussion groups at which they can learn about each other's work. In this connection communication is a two-way process. It is frequently reported that theoretical economists are more interested in outward rather than inward communication. Many staff members of business schools, labor relations institutes, and departments of agricultural economics complain that they have not been able to establish a two-way communication with the economists of the economics department.

Fourth, at least the common core fields of economic theory, economic history, and history of economic thought should be retained in the economics department which should do the teaching of these subjects for all students regardless of their administrative affiliation.

Fifth, general economics departments should develop special courses for students whose major interest lies in fields related to economics but who are not to become primarily economists, for example, students of accounting, of industrial management, of industrial psychology, etc. To expect these students to meet the same requirements as majors in economics is unreasonable. It can lead only to friction and to efforts to by-pass the department. Many cases have been reported to me of students, in various fields marginal to economics, who have been prevented from getting their Ph.D.'s because of unwillingness or inability to meet theory requirements designed for economics majors. Some departments have tried to meet this situation by holding the requirement but altering the courses, thus diluting the training of their own economics majors. This, I feel, has been unwise.

Finally, sixth, I believe that many of the organizational difficulties could be prevented or overcome if all of the social sciences and their related applied fields could be brought together into one large administrative unit having a flexible departmental structure. Such an administrative unit, if under capable leadership, would facilitate communication among the staff-members within each discipline and also communication among staff-members of related disciplines. It would simplify the administrative problems involved in developing interdisciplinary programs. It would help to maintain closer and mutually helpful connections between basic and applied fields. It would help to break down the rigid administrative and intellectual lines that separate various disciplines.

But even when all of these things have been done, many of the organizational problems will remain. These are problems we must live with in an intellectual world which does not lend itself to neat compartmentalization.[8]

Evaluation of Departments

In any discussion of educational institutions, their staffs and their facilities, the question inevitably arises as to what devices might be employed to stimulate existing departments to improve, or to prevent unqualified departments from continuing in (or entering) the field. One answer to this is, of course, demand and supply. This is not a complete answer, because the incentives to the supply of graduate work are not always confined to the meeting of a demand. Moreover, the consumer is not always able to choose intelligently, and often is influenced by subsidies, by personal relationships, or by the convenience of remaining near home.

A second answer is the pressure of opinion within the profession. It is sometimes held that inferior graduate work will be found out, and that those responsible will lose caste within the profession; conversely, that superior graduate work will be recognized and will bring professional status and honor to those responsible. It is true that public opinion does exert considerable pressure in this respect. Unfortunately, however, communication within the profession is far from perfect, and there are some departments of economics which have so lost contact with the outside profession that they do not feel the pressure of professional opinion.

[8] For a discussion of the subject of fragmentation with reference to political science, see American Political Science Association, Report of the Committee for the Advancement of Teaching, *Goals for Political Science*, New York, 1951, pp. 86-97. On administrative relationships between departments of economics and schools of business, see Horace Taylor (editor), "The Teaching of Undergraduate Economics," *American Economic Review* (supplement), Dec. 1950, pp. 121-24.

A third answer is accreditation by an outside agency. Several professional associations have entered this field, e.g., the American Chemical Society and the American Association of Collegiate Schools of Business. Apparently accreditation has sometimes achieved significant results, its greatest benefit deriving from the fact that it requires the careful study of standards and represents an important educational experience for all concerned.[9] As anyone connected with higher education knows, however, accreditation is also subject to abuses—especially because the standards tend to be weighted with those criteria which are objective (number of staff, degrees, dollars spent, administrative organization, etc.) rather than with those qualitative considerations which are all-important in education. Sometimes, accreditation has monopolistic overtones, and it tends to impose uniformity and to discourage experimentation. Formal accreditation by an outside agency is far from a panacea, and I am not prepared to recommend that the American Economic Association at this time enter the business of accreditation.

I believe, however, that graduate departments should from time to time subject themselves and their programs to examination by qualified outside members of the profession. I believe that every graduate department should arrange for such an examination by an outside visiting committee at least every five years. The report of the examining committee should be confidential for use by the department and the general administration of the university. The examining committee should be appointed not by the department to be examined but by the president or graduate dean of its university, or by an outside agency such as the American Economic Association. The Association should stand ready to cooperate both in formulating standards for judging departments and in nominating *ad hoc* committees for investigating departments. The expense of this work should be borne by the university whose department is under review.

To carry out this recommendation, the Association should establish a standing committee the function of which would be to formulate standards for graduate education, to encourage universities to place their departments under review, and to nominate *ad hoc* committees for the investigation of particular departments.

[9] For a discussion favorable to accreditation, see Association of American Universities, "Report of the Special Committee on Accrediting Graduate Study," *Journal of Proceedings and Addresses*, 1945, pp. 39-70.

Chapter 13

INSTRUCTIONAL METHODS

This chapter is in no sense a comprehensive treatment of instructional methods. It presents several issues and offers a few suggestions regarding procedures in the teaching of students of economics at the graduate level.

Independent Study

A major issue in graduate study concerns the degree of independence with which the student pursues his work. At the one extreme, his entire graduate program would consist entirely of a series of formal courses (American undergraduate style) with systematic coverage of fields, specific assignments, and frequent examinations. At the other extreme, the student would be entirely on his own, his only requirement being that of satisfying an examining committee at the conclusion of his studies (European style). In the latter case, he would be free to attend lectures and seminars and to benefit from the guidance of faculty members, but his work would be entirely independent and he would be judged only by his final performance and not by his day to day work.[1] In practice, American graduate education falls between these extremes, but there are substantial differences among institutions with respect to the degree of independence of students. In most, despite protestations to the contrary, graduate education is closer to the American undergraduate pattern than to the European pattern. Considerable emphasis is placed upon systematic courses, course examinations, hours of credit, residence, and the other aspects of American college routine. The deviations from the undergraduate pattern include the seminars in which special topics or problems are treated, a limited amount of independent study or research, and the writing of theses and dissertations. The various comprehensive examinations are supplementary to the examinations given in courses and seminars.[2] Moreover, the comprehensive examinations are often

[1] Several valuable papers on the teaching of economics in various countries were presented at a meeting sponsored by the International Economic Association at Palloires (Haute Savoie), France in August 1951. These papers were published in mimeographed form.

[2] On the whole, I favor the use of course examinations and grades, as well as a comprehensive examination, in judging students. The former provide independent judgments of the student in a variety of situations and by a variety of professors acting independently. The latter provides only a single collective judgment. However, I believe that the comprehensive examinations should cover *fields* and not courses.

merely additional examinations over particular courses rather than examinations covering entire "fields"—as they purport to be. The questions which this situation suggest are: Would graduate education be improved if it represented a sharper breaking away from undergraduate procedures? Would it be desirable to place less emphasis on formal systematic courses and to give greater scope to seminars, independent study, and research?

Unfortunately, I do not know the answer to this question. Most departments are led toward undergraduate methods by the fact that many students bring to graduate study an inadequate intellectual background. It seems necessary to drill them systematically on fundamentals before letting them spread their wings. Yet I have the uneasy feeling that our procedures delay rather than advance intellectual independence and maturity. Particularly, I feel that something might be done for the more gifted students to relieve them of going through the routine of earning "credits" and meeting various formal requirements.

A promising proposal in this direction, with which Professor Friedman of the University of Chicago is experimenting, would be a "workshop" for selected second-year graduate students. They would devote their entire time to this enterprise. Only those students would be eligible who had adequate preparation in theory, statistics, and money prior to entering graduate school, and who had completed rigorous graduate work in the "core" fields during the first graduate year. Then, during the second year, they would devote full time each semester or quarter to one problem in a selected field. They would work on this problem in close consultation with the indicated professor, and develop a report in publishable form (or as nearly so as possible). Then, in the third year, the student would proceed to his dissertation. The workshop proposal has the advantage of giving students the opportunity for independent and concentrated work.

Another possible method of achieving more independence would be greater use of seminars. Unfortunately, it seems that seminars have a way of degenerating into straight courses—so a sharp break with customary practice may be necessary to achieve the desired result. Still another device is to permit superior students to engage in independent study for "credit" under the guidance of one or more professors.

Creative Activity

A closely related problem concerns the balance between (a) active and creative work of students (solving problems, original writing, discussing issues) and (b) passive and absorptive pursuits (reading and listening to lectures). A possible criticism of much graduate work is

that it consists too largely of the latter. While no one would argue that reading and listening are unnecessary, there is a real question as to whether the reading and listening that is done for its own sake and without problems to solve or questions to answer is as useful or meaningful as that which is directed toward specific problems and questions. An increase in the amount of creative work done by students would doubtless improve graduate education. This, incidentally, provides a strong argument for the retention of the master's thesis or its equivalent. Some attention also might be given to planning the topics and schedules of the papers and problems a student will do for his various courses. This would make it possible to space deadlines conveniently, and to provide for the inclusion of various kinds of topics, e.g., empirical, theoretical, public policy, etc.

Another type of creative activity is discussion not only in the classroom but outside. Apparently a serious lack in many departments, as reported by both students and faculty, is the dearth of facilities and the absence of traditions conducive to vigorous discussion. Common rooms, student offices, graduate dormitories, student clubs, and gatherings of students at faculty homes are all helpful in this regard. Universities located in small towns have an advantage in that a campus student life is possible. A requirement for student discussion is an intellectual spirit which apparently requires leadership and the interaction of vigorous personalities. Without this, even the most favorable physical surroundings will not create an atmosphere of fruitful discussion.[3]

A topic closely related to independent and creative student work is the use of the problem or case method in instruction. So far as I know no one proposes that graduate education in economics be conducted entirely by the case method. There are many who recognize the merits of this method for certain purposes and several experiments along this line are under way. The experience of the Harvard Graduate School of Business is well known. Also the several graduate schools of public administration have developed and used case materials with apparent success. In dealing with problems of public policy, the use of cases would undoubtedly be helpful in the teaching of economics at the graduate level—especially as a way of dealing with public policy issues. The use of cases is of great utility in bringing economic principles into touch with reality, in illustrating the complexity of the real world, in showing the strength and limitations of economics, in demonstrating its relations to other areas, and in stimu-

[3] On the general subject of independent study, creative activity, etc., see Horace Taylor (editor), "The Teaching of Undergraduate Economics," *American Economic Review* (supplement), Dec. 1950, pp. 150-1, 154-5.

lating interest in the field. Those who have experimented with the case method in economics advise the use of a few selected cases intensively analyzed rather than many superficially studied. However, it must be recognized that the difference between a "case" and an "illustration" is only one of degree; many teachers have been using the case method without so describing it or considering that they were departing from conventional teaching methods. Indeed much of economic history is, or could be, the study of cases. Yet something new and useful has been added when particular episodes in public policy formation are investigated carefully with the object in mind of "solving" the problem.

The great difficulty in using the case method of instruction is to find suitable materials for the presentation of cases to students. To meet this problem, the law colleges, the Harvard School of Business, and the Schools of Public Administration have been forced to devote enormous energies to the development of case materials. To do the same for economics would require a similar major effort. Could the American Economic Association provide leadership in the development of case materials? I am inclined to think so. I suggest, therefore, that a committee on the case method of instruction be appointed to consider needs, to inventory present resources, and to plan methods of augmenting these resources. The experience of the public administration group under the leadership of Dr. Harold Stein would be extremely useful in this respect.[4]

Incentives and Rewards for Distinguished Scholarship

Graduate students probably do not need, and might resent, attempts to apply the elaborate system of awards, prizes, honorary memberships, etc., which are used to spur undergraduate students on to greater accomplishment. However, something useful might be done to honor or reward those graduate students who have done distinguished work. The David A. Wells Prize at Harvard is an example of a well-known award of this type. It would be possible for many graduate departments of economics to do more than they now do to provide special incentives for exceptional work. Possible devices would be to publish outstanding theses and dissertations, to award prizes for outstanding scholarship, or to provide special honorary fellowships. The American Economic Association might enter this field by offering prizes for the best theses or dissertations, or by publishing them completely or in abstract form.

Standardized Examinations

At present, most departments provide comprehensive examinations

[4] See Harold Stein (editor), *Public Administration and Policy Development: A Case Book*, New York, 1952.

in written and/or oral form. The written examinations rely largely on broad general questions requiring fairly lengthy discussion, and the oral examinations are usually informal and relatively unplanned. There is reason to suppose that these examination procedures are not always as rigorous or as objective as might be wished. The difficulty of achieving good examination procedures is especially difficult in the departments having small numbers of students. This is true for two reasons: (1) the close personal relations of students and professors makes objective judgment difficult and it makes the failing of a student, when necessary, a most painful experience; and (2) it is difficult to develop comparative standards when the number of students is very small. Even in larger departments, the question arises as to how their standards and the quality of their students compare with those in other universities.

There are two possible solutions to this problem. One would be to employ outside examiners. Many professors favor this plan. It is common in Europe, and is used by several liberal arts colleges in the United States. It presents, however, serious administrative and financial difficulties, especially when the number of students to be examined is small.[5] A second possible solution would be the use of standardized examinations which would be given to students in many universities. Such examinations could be provided, for each of the principal fields, at the master's and the Ph.D. level. The papers from all universities would be judged by one committee, and the grades or scores reported on a confidential basis to each of the participating departments. The examination might be of the "essay" type or it might combine essay and objective questions.

While no department would wish to rely entirely upon an outside standardized examination in judging its candidates, such a procedure would help both in judging the ability of students and in measuring the effectiveness of the department in selecting and educating students. The disadvantages of the outside examination are that it might lead to standardization, and that it might tend to divert the educational process from those areas which the professors consider important to those subjects which are likely to be covered on the examination. The influence of these factors is seen clearly, for example, in the education of accountants which is often geared to the objective of passing the C.P.A. examination. Outside examinations for economists, I think, ought never occupy a position analogous to that of the C.P.A. examinations. They should be thought of as advisory and as supplementary to existing examination procedures. If conducted in this way, they

[5] About half of the professors queried on this proposal were favorable and half opposed.

might exert a helpful influence toward clarifying objectives and toward raising the quality of graduate education in economics.

If such standardized examinations were to be given, who should administer them? This task might be carried on under the aegis of the American Economic Association possibly with the cooperation of a professional agency such as the Educational Testing Service. I recommend that the Association explore the possibility of developing a program for conducting nation-wide examinations for graduate students in economics.

Miscellaneous Suggestions

In my visit to graduate departments of economics, I observed or heard about several educational devices which seem to work well and which might be employed more widely. These included the following:

(1) Mimeographing and distributing seminar papers in advance of their presentation.
(2) Publication of seminar papers, together with student critiques, after the papers have been presented, discussed, and revised.
(3) Organization of small groups of students for review prior to comprehensive examinations.
(4) Examination of students on a list of important books as part of the comprehensive examinations.
(5) Publication of examination questions for prior years.
(6) Reading of written comprehensive examinations, for each field, by several professors each of whom does not know the judgment of any of the others.
(7) Reading of written comprehensive examinations without the student names appearing on the papers.
(8) A paid graduate student assistant to handle student relations, including social functions, use of common rooms, discussion groups, etc.
(9) Credit given for proficiency examinations in lieu of certain courses—especially for superior students.

Chapter 14

GRADUATE STUDY IN ECONOMICS: A NATIONAL VIEW

The precise number of universities in the United States and Canada which offer graduate work in economics is difficult to ascertain because the number fluctuates from year to year, and it is difficult to classify some institutions which theoretically *offer* graduate work but seldom or never actually award any advanced degrees. During the two years 1949-50 and 1950-51, 126 U. S. institutions actually awarded one or more master's degrees in economics.[1] And during the post-war years 1945-6 through 1950-1, 67 institutions in the United States and Canada actually awarded one or more Ph.D.'s (see table 41). On the basis of these figures, one would guess that there are about 135 institutions in the United States and Canada which offer and sometimes give graduate work in economics. Of these, perhaps 70 award *both* the master's degree and the Ph.D., and 65 give only the master's degree.

Enrollment and Number of Degrees

In 1951-52 these institutions had a combined graduate enrollment in economics of roughly 3,000 students.[2] During recent years they have awarded about 800 master's degrees in economics per year[3] and from 200 to 400 Ph.D.'s.[4]

No data are available on the trend in the number of master's degrees awarded, but figures are available on the number of Ph.D.'s awarded over the period 1925-26 through 1950-51. These data are presented in table 43, and comparisons are made with the number of doctorates awarded in all fields. These figures show a generally rising trend in

[1] The number awarding master's degrees in 1950-51 was 102 (see table 42) and in 1949-50, 113. Some institutions awarded master's degrees in only one of these years, hence the figure 126 exceeds either of these numbers. See U. S. Office of Education, ***Earned Degrees Conferred by Higher Educational Institutions,*** 1949-50. Data for 1950-51 were kindly made available to me by Mr. Robert C. Storey of the Office of Education.

[2] This estimate is based on enrollment figures supplied by 37 institutions. The total was estimated by adjusting the reported figures on the basis of ratio of advanced degrees awarded by all institutions to the number awarded by the reporting institutions.

[3] According to the U. S. Office of Education the following numbers of master's degrees in economics were awarded (cf., table 42).

1946-47	693
1948-49	863
1949-50	921
1950-51	807

[4] See table 43.

TABLE 41.—DOCTORAL DISSERTATIONS IN ECONOMICS ACCEPTED BY AMERICAN UNIVERSITIES, 1925–26 TO 1950–51[a]

University	1925–26 to 1934–35		1935–36 to 1944–45		1945–46 to 1950–51	
	Number	Percent	Number	Percent	Number	Percent
American	18	1.5	12	0.9	12	0.8
Boston	—	—	6	0.5	3	0.2
Brookings	40	3.4	—	—	—	—
Brown	2	0.2	9	0.7	2	0.1
Bryn Mawr	1	0.1	2	0.2	—	—
California (Berkeley)	59	5.1	57	4.4	40	2.7
California (Los Angeles)	—	—	—	—	1	0.1
Catholic	7	0.6	19	1.5	13	0.9
Chicago	73	6.3	75	5.8	95	6.3
Cincinnati	—	—	1	0.1	1	0.1
Claremont	—	—	—	—	2	0.1
Clark	4	0.3	7	0.5	7	0.5
Colorado	2	0.2	2	0.2	4	0.3
Columbia	112	9.6	150	11.5	132	8.8
Cornell	82	7.0	94	7.2	68	4.5
Duke	5	0.4	16	1.2	14	0.9
Duquesne	5	0.4	—	—	—	—
Fletcher School	—	—	1	0.1	—	—
Florida	—	—	—	—	2	0.1
Fordham	2	0.2	5	0.4	10	0.7
George Peabody	2	0.2	1	0.1	1	0.1
George Washington	7	0.6	4	0.3	6	0.4
Georgetown	4	0.3	—	—	3	0.2
Harvard	122	10.5	121	9.3	257	17.1
Illinois	79	6.8	73	5.6	66	4.4
Indiana	2	0.2	1	0.1	17	1.1
Iowa	27	2.3	35	2.7	46	3.1
Iowa State	—	—	10	0.7	27	1.8
Johns Hopkins	30	2.6	17	1.3	6	0.4
Kansas	2	0.2	—	—	3	0.2
Kentucky	—	—	1	0.1	8	0.5
Laval	—	—	1	0.1	1	0.1
Louisiana	—	—	9	0.7	6	0.4
Loyola	—	—	—	—	2	0.1
McGill	—	—	3	0.2	2	0.1
Maryland	2	0.2	—	—	5	0.3
Massachusetts	2	0.2	1	0.1	5	0.3

[a] Source: C. S. Marsh (editor), *American Colleges and Universities*, American Council on Education, Washington, 1936; *Doctoral Dissertations Accepted by American Universities*, H. W. Wilson Co., New York, annual. Similar data on "Candidates preparing doctoral theses covering the period 1904–50" are presented in L. A. Froman, "Graduate Students in Economics," *American Economic Review*, Sept. 1952, p. 603, and Dec. 1942, p. 818. Because of rounding, percentage totals do not necessarily equal 100.

TABLE 41 (*Continued*)

University	1925–26 to 1934–35		1935–36 to 1944–45		1945–46 to 1950–51	
	Number	Percent	Number	Percent	Number	Percent
M.I.T.	—	—	—	—	21	1.4
Michigan	32	2.7	36	2.8	33	2.2
Michigan State	2	0.2	—	—	7	0.5
Minnesota	35	3.0	51	3.9	48	3.2
Missouri	4	0.3	3	0.2	8	0.5
Nebraska	2	0.2	7	0.5	2	0.1
New School	—	—	—	—	8	0.5
New York	9	0.8	56	4.3	46	3.1
North Carolina	8	0.7	25	1.9	9	0.6
Northwestern	29	2.5	39	3.0	23	1.5
Notre Dame	2	0.2	1	0.1	—	—
Ohio State	25	2.1	51	3.9	47	3.1
Oregon State	—	—	—	—	2	0.1
Pennsylvania	76	6.5	25	1.9	42	2.8
Penn State	1	0.1	3	0.2	5	0.3
Pittsburgh	2	0.2	21	1.6	17	1.1
Princeton	23	2.0	23	1.8	16	1.1
Purdue	—	—	7	0.5	25	1.7
Radcliffe	16	1.4	11	0.8	21	1.4
Rutgers	1	0.1	—	—	2	0.1
St. Louis	2	0.2	6	0.5	13	0.9
Southern California	3	0.3	17	1.3	20	1.3
Stanford	36	3.1	18	1.4	15	1.0
Syracuse	3	0.3	1	0.1	5	0.3
Temple	—	—	5	0.4	3	0.2
Texas	7	0.6	22	1.7	34	2.3
Toronto	—	—	2	0.2	6	0.4
Vanderbilt	2	0.2	7	0.5	6	0.4
Virginia	21	1.8	24	1.8	25	1.7
Washington (St. Louis)	—	—	9	0.7	3	0.2
Washington (Seattle)	4	0.3	5	0.4	2	0.1
Washington State	—	—	—	—	1	0.1
Wisconsin	99	8.5	91	7.0	92	6.1
Yale	31	2.7	18	1.4	24	1.6
Other	—	—	—	—	3	0.2
Total	1,166	100.0	1,317	100.0	1,501	100.0

number of doctorates in economics with year to year variations apparently correlated with national income. Doctorates in economics as a percentage of the total for all fields were apparently higher in the late 1920's than since.

TABLE 42.—MASTER'S DEGREES IN ECONOMICS CONFERRED, 1950–51[a]

University	Number	Percent	University	Number	Percent
Alabama	2	0.2	Michigan	29	3.6
American	10	1.2	Michigan State	8	1.0
Arizona	4	0.5	Minnesota	36	4.5
Arkansas	4	0.5	Mississippi	4	0.5
Baylor	10	1.2	Missouri	12	1.5
Boston College	10	1.2	Montana	3	0.4
Boston University	12	1.5	Mt. Holyoke	2	0.2
Brooklyn	1	0.1	Nebraska	12	1.5
Brown	6	0.7	New Hampshire	2	0.2
Bucknell	2	0.2	New Mexico	2	0.2
Buffalo	1	0.1	New School	15	1.9
California (all campuses)	30	3.7	New York	35	4.3
Carnegie Tech.	1	0.1	Notre Dame	10	1.2
Chicago	45	5.6	North Carolina	10	1.2
Cincinnati	9	1.1	North Texas	5	0.6
Clark	3	0.4	Ohio State	9	1.1
Colorado	3	0.4	Ohio U.	2	0.2
Columbia	64	7.9	Oklahoma	2	0.2
Connecticut	7	0.9	Oklahoma A. & M.	1	0.1
Cornell	3	0.4	Oregon	3	0.4
Denver	6	0.7	Pennsylvania	21	2.6
Drake	7	0.9	Penn State	9	1.1
Duke	10	1.2	Pittsburgh	26	3.2
Florida	5	0.6	Prairie	1	0.1
Florida State	3	0.4	Princeton	7	0.9
George Peabody	2	0.2	Purdue	4	0.5
Georgetown	1	0.1	Rutgers	8	1.0
George Washington	9	1.1	Sam Houston	1	0.1
Houston	4	0.5	St. Louis	9	1.1
Idaho	1	0.1	South Carolina	3	0.4
Illinois	21	2.6	South Dakota	1	0.1
Indiana	14	1.7	South Dakota State	3	0.4
Iowa	6	0.7	Southern California	8	1.0
Iowa State	19	2.4	Southern Illinois	2	0.2
Johns Hopkins	4	0.5	Southern Methodist	1	0.1
Kansas	5	0.6	Stanford	13	1.6
Kansas State	6	0.7	Stetson	3	0.4
Kansas City	1	0.1	Tennessee	2	0.2
Kentucky	3	0.4	Texas	15	1.8
Louisiana	9	1.1	Texas A and M	1	0.1
Marquette	2	0.2	Texas College	3	0.4
Maryland	3	0.4	Texas State	1	0.1
Massachusetts	2	0.2	Tulane	1	0.1
M.I.T.	3	0.4	Utah	1	0.1
Miami (Florida)	6	0.7	Utah State	1	0.1

TABLE 42 (*Continued*)

University	Number	Percent	University	Number	Percent
Vanderbilt	6	0.7	Western Reserve	2	0.2
Virginia	8	1.0	William and Mary	1	0.1
Washington (St. Louis)	2	0.2	Wisconsin	35	4.3
Washington (Seattle)	10	1.2			
Washington State	2	0.2	Wyoming	1	0.1
			Yale	6	0.7
Wayne	5	0.6		—	—
West Virginia	3	0.4	Total	807	100.0

[a] Source: U. S. Office of Education. These data were kindly made available to me in advance of publication by Mr. Robert C. Storey, Head, Technical Services Unit. Because of rounding, percentage total does not equal 100.

Concentration of Graduate Enrollments

As shown in tables 44 and 45 the universities offering graduate work give widely varying numbers of degrees. More than a third awarded fewer than one doctorate per year on the average, since the war, and only six awarded 10 or more doctorates per year. About a third of the universities awarded one or two master's degrees (in 1950-51) and

TABLE 43.—DOCTORAL DISSERTATIONS ACCEPTED BY AMERICAN UNIVERSITIES, 1925–26 TO 1950–51[a]

Year	Number in economics	Total in all fields	Number in economics as percentage of total	Year	Number in economics	Total in all fields	Number in economics as percentage of total
1925–26	89	1368	6.5	1938–39	150	2928	5.2
1926–27	101	1504	6.7	1939–40	141	3088	4.6
1927–28	103	1548	6.6	1940–41	176	3526	5.0
1928–29	120	1912	6.3	1941–42	181	3243	5.6
1929–30	143	2078	6.8	1942–43	114	2689	4.2
1930–31	138	2183	6.3	1943–44	97	2117	4.6
1931–32	127	2368	5.4	1944–45	71	1576	4.5
1932–33	134	2462	5.4	1945–46	103	1708	6.1
1933–34	109	2620	4.1	1946–47	167	2587	6.4
1934–35	103	2649	4.0	1947–48	203	3609	5.6
1935–36	117	2683	4.4	1948–49	237	4853	4.9
1936–37	127	2707	4.7	1949–50	392	6510	6.0
1937–38	143	2768	5.2	1950–51	399	7477	5.3

[a] Source: C. S. Marsh (editor), *American Colleges and Universities*, American Council on Education, Washington, 1936; *Doctoral Dissertations Accepted by American Universities*, H. W. Wilson Co., New York, annual.

TABLE 44.—FREQUENCY DISTRIBUTION OF UNIVERSITIES BY AVERAGE NUMBER OF DOCTORAL DISSERTATIONS ACCEPTED, 1945–46 TO 1950–51[a]

Average number of doctoral dissertations accepted per year	Number of universities
0–0.4	14
0.5–0.9	11
0.1–1.4	10
1.5–2.4	6
3–4	11
5–6	3
7–9	6
10–14	2
15–19	2
20–29	1
30–39	—
40–49	1
50 and over	—
Total	67

[a] See table 41 for basic data.

TABLE 45.—FREQUENCY DISTRIBUTION OF UNIVERSITIES BY NUMBER OF MASTER'S DEGREES AWARDED, 1950–51[a]

Number of master's degrees awarded	Number of universities
1–2	33
3–4	20
5–6	11
7–9	13
10–14	12
15–19	3
20–29	4
30–39	4
40–49	1
50 and over	1
Total	102

[a] See table 42 for basic data.

only 10 awarded more than 20. This suggests that a large part of the graduate work of the country is concentrated in a few institutions. Table 46 lists the 10 leading universities in number of Ph.D's and master's degrees awarded and indicates the percentage of degrees granted by each. As shown in the table about 60 percent of all doctorates and 43 percent of all master's degrees are awarded by 10 insti-

tutions.[5] The remaining 40 percent of the doctorates are divided among 57 other institutions and the remaining 57 percent of the master's degrees are divided among more than 100 other institutions.

These data on the distribution of graduate degrees among institutions raise the question of whether graduate study is quantitatively too concentrated within a few institutions—or whether it is too widely dispersed among many institutions, or both. I have already considered economies of scale with reference to graduate education (Chapter 13). My tentative conclusion was that it is probably too dispersed—that better and more efficient education would be possible if the student population could be drawn together into a somewhat smaller number of institutions.

TABLE 46.—LEADING INSTITUTIONS IN NUMBER OF ADVANCED DEGREES AWARDED IN ECONOMICS

Ph.D.			Master's degree		
Rank	Institution	Percentage of Ph.D.'s awarded 1945–46 through 1950–51[a]	Rank	Institution	Percentage of all master's degrees awarded 1949–50 and 1950–51[b]
1	Harvard	17.1	1	Columbia[c]	7.6
2	Columbia[c]	8.8	2	Wisconsin[c]	4.7
3	Chicago[c]	6.3	3	Chicago[c]	4.4
4	Wisconsin[c]	6.1	4	New York[c]	4.3
5	Cornell	4.5	5	Michigan	4.3
6	Illinois[c]	4.4	6	Pennsylvania	4.3
7	Minnesota[c]	3.2	7	California (all campuses)	4.1
8	Iowa	3.1	8	Minnesota[c]	3.8
9	New York[c]	3.1	9	Pittsburgh	2.8
10	Ohio State	3.1	10	Illinois[c]	2.5
	Total	59.7			42.8

[a] See Table 1. Data refer to doctoral dissertations accepted.
[b] Basic data from U. S. Office of Education.
[c] Among the first ten for both Ph.D.'s and master's degrees.

I queried graduate professors on this point. With reference to doctoral students, the most frequent answer was that the distribution of students is too highly concentrated *and* that too many institutions are offering graduate work. With reference to the master's degree, there was less concern over the distribution of students.

[5] Six institutions are among the leading ten for both the Ph.D. and the Master's degree (Columbia, Chicago, Wisconsin, Illinois, Minnesota, and New York). Apparently the concentration has not been so great for the post-war period as it was in pre-war years. Whereas the top 10 institutions in the period 1945-46 to 1950-51 produced 60 percent of the doctorates, the ten leaders in 1938-39 to 1941-42 produced 66 percent of the doctorates.

In conversations on this subject, it was sometimes pointed out that excessive concentration of graduate students within a few universities might on the whole be disadvantageous in that it would reduce the amount of diversity in types of programs offered and in points of view represented. Hence it was thought desirable to maintain considerable freedom of entry into the field of graduate education in economics, and not to move toward some sort of accreditation precedure which might limit the number of institutions too rigidly. Moreover, it was pointed out that size alone is no guarantee of quality, and that in fact some of our most distinguished graduate departments are very small—some by deliberate choice. Nevertheless, my general judgment is that too many institutions are offering graduate work and competing for the relatively small flow of students. Ample diversity could still be maintained if the number of institutions were substantially diminished. In point of fact, very little diversity is obtained merely through large numbers because most of the smaller institutions are very conservative and follow consistently the patterns of the larger ones. Today, most of the experimentation and flexibility is to be found in the large and well-known institutions.

My principal conclusion would be a word of caution to institutions which are considering entry into the graduate field, a suggestion to those already in the field marginally to consider whether withdrawal might not be wise. The conclusion stems in part from considerations of costs as presented in Chapter 12.

TABLE 47.—TYPES OF INSTITUTIONS FROM WHICH BACHELOR'S DEGREES WERE OBTAINED BY GRADUATE STUDENTS IN ECONOMICS

	Graduate students in residence 1951–52[a]	Former graduate students who received advanced degrees in 1939–40 or 1949–50[b]
Private universities, members of Association of American Universities	16%	18%
State universities or colleges, members of AAU	21	25
Private universities, not members	15	11
State universities or colleges, not members	9	15
Private liberal arts colleges	16	17
Municipal colleges or universities	4	4
Other	14	3
Unknown	5	7
Total	100	100

[a] Schedule IX: 140 respondents.
[b] Schedule X: 218 respondents.

TABLE 48.—MIGRATION OF GRADUATE STUDENTS IN ECONOMICS: COMPARISON OF INSTITUTIONS OF BACHELOR'S, MASTER'S, AND DOCTORATE

	Candidates preparing doctoral disserta-tions, 1951[a]	Graduate students in residence, 1951–52[b]	Former graduate students who received advanced degrees in 1939–40 or 1949–50[c]
All three different	14%	12%	11%
Bachelor's and doctorate different; no masters	10	1	6
All three the same	13	9	19
Bachelor's and doctorate same; no master's	4	—	2
Bachelor's and master's same; doctorate different	14	9	10
Master's and doctorate same; bachelor's different	30	21	26
Bachelor's and doctorate same; master's different	1	1	1
Bachelor's and master's different; no doctorate	—	27	9
Bachelor's and master's same; no doctorate	—	13	9
Unknown	14	7	7
Total	100	100	100

[a] Source: "Forty-Eighth List of Doctoral Dissertations," *American Economic Review*, Sept. 1951, pp. 786–828. Tabulations included students whose theses were in preparation or had been completed and accepted.
[b] Schedule IX: 140 respondents.
[c] Schedule X: 218 respondents.

At the other extreme, there are a few institutions (probably not more than 2 or 3) at which the number of students possibly exceeds the optimum. Such institutions might well consider limiting their enrollments. It is possible that general enrollment trends and the tapering off of G.I. benefits will accomplish the result without specific action.

The Flow of Students

As shown in table 47, graduate students in economics apparently took their bachelor's degrees in many types of institutions, though the great majority did their undergraduate work in larger "universities" rather than smaller "colleges."[6] As they proceeded to graduate study, a substantial number stayed at the same institution for the master's degree and some stayed on for the doctorate, but a majority moved to another institution at some point in their graduate careers. Table 48 shows the institutional history of three groups of graduate students, and indicates the considerable tendency toward moving from one institution

[6] Cf. L. A. Froman, "Graduate Students in Economics," *American Economic Review*, Sept. 1952, p. 607.

to another. Table 49 presents data on the geographic movement of graduate students during their graduate careers. This table indicates that a third to a half of the students took their graduate work in the same geographic region as their homes but that a majority took their graduate work elsewhere.

When students were asked how they happened to select their graduate institutions, a large minority mentioned such practical matters as geographic proximity to home, finances, and evening school. Another

TABLE 49.—MIGRATION OF GRADUATE STUDENTS IN ECONOMICS: COMPARISON OF GEOGRAPHIC REGIONS OF HOME TOWN, UNDERGRADUATE COLLEGE, AND INSTITUTION GRANTING HIGHEST DEGREE[a]

	Graduate students in residence 1951–52[b]	Former graduate students who received advanced degrees in 1939–40 or 1949–50[c]
All in same region	31%	45%
All in different region	12	6
Home town and undergraduate college same; highest degree different	36	26
Home town and highest degree same; undergraduate college different	6	3
Undergraduate college and highest degree same; home town different	11	9
Unknown	4	11
Total	100	100

[a] Geographic region refers to the standard regions used by the U. S. Census. Home town was defined as "home town at the time you finished secondary school."
[b] Schedule IX: 140 respondents.
[c] Schedule X: 218 respondents.

large group mentioned the high standing of the institution or department. Surprisingly few mentioned desire to study with particular professors or type of work offered.

In general, professors believe that diversity of graduate student population with reference to geographic origin and institution of bachelor's degree is desirable. They also believe that it is good for students to have experience at more than one institution during their academic careers. A substantial number would prefer wider diversity as to geographic and institutional origins of their own student bodies. When questioned on what could be done to increase diversity, many mentioned greater financial aid with which to attract students and nearly as many mentioned departmental improvement.

Specialization and Cooperation

As I traveled about the country visiting graduate departments of economics, I was impressed with the lack of specialization and cooperation among institutions. The great majority of institutions are offering a fairly standardized program with broad coverage of many fields. Little effort is made by institutions to differentiate their offerings or to take advantage of their special resources. This is all to the good to the extent that basic training in fundamentals is essential in the education of all economists. Yet one might have thought that particular institutions would attempt to develop distinction in special fields, for example, government and business, international economics, or labor relations. But one finds remarkably little of this specialization.

Similarly, one finds impressively little cooperation among institutions —even among those located near each other. For example, there is apparently little tendency to encourage one's students to take specialized work at other institutions—even when the quality of such work may be superior. There is little exchange of faculty or participation in the seminars of other universities.

There are notable exceptions to these generalizations, one of the most interesting being the cooperative graduate program offered by the group of colleges in Claremont, California. Yet the lack of specialization and cooperation is almost everywhere more impressive than its presence.

I do not have any clear recommendation as to what might be done about duplication, lack of specialization, and lack of cooperation. The Hotelling principle that competitors tend to converge toward the "middle" of the market may be at work here. At least it seems that each institution might examine its own resources and potentialities carefully, and attempt to direct its activities toward those areas in which it can make the greatest contribution to the nation's facilities for training economists. It is not necessary that every institution try to do everything.

Facilities in Washington and New York

The suggestion has been made frequently that a liaison agency is needed in Washington to represent and serve the graduate departments of economics throughout the country. This agency might perform a variety of functions. The following are some of those which have been suggested.

First, the agency might maintain contact with the many students who are employed in Washington prior to completing their graduate work, and encourage and assist them in completing their graduate studies. Washington has become notable for the number of economists em-

ployed there who have completed all their graduate work "except the dissertation." Presumably, then, the functions of the agency might range from "encouragement" or assistance to actual supervision of the writing of dissertations. In the latter case, it would serve as representative of the universities of original jurisdiction—the latter actually awarding the degrees.

Second, the agency might offer seminars or courses which could be taken by students with or without credit in their home universities.

Third, it might assist candidates by opening up sources of data or research information in Washington, or by offering advice or assistance in the carrying out of research projects.

Fourth, the agency might provide research associateships for young economists—either for graduate students or University staff members.

Fifth, the agency might assist in organizing and administering a program for in-service training of graduate students who are employed in the Federal government.

Sixth, it might provide an ongoing research program which students could observe.

If all of these things were done, the agency would indeed be a busy place. But any one or more of these things would be useful, and the more the better. The main purpose of the agency, from the point of view of academic departments of economics, would be to provide opportunities for students to gain experience in Washington and to encourage and assist those students who are employed in Washington to complete their graduate studies.

The question is: what agency might perform these functions? Many have suggested the Brookings Institution. From the point of view of its history, location, and facilities it would be ideal. I have discussed the matter with Dr. Robert D. Calkins, the new President of the Brookings Institution who tells me that he is interested in exploring the possible usefulness of this organization in the training of economists (though he is in no sense committed to any of the proposed functions listed above). I believe that the profession, perhaps represented by the American Economic Association, should attempt to promote the development of such facilities in Washington.

It is also conceivable that similar facilities could be provided in New York, for example, by the National Bureau of Economic Research. That institution already maintains close relationships with many universities and already offers research associateships and fellowships to young economists.

"Adult" Education for Economists

Finally, I shall consider the question of whether the economic profession offers adequate facilities for its members to "keep up" with

current developments in the field. The principal facilities now employed are professional journals, professional meetings, and contact with colleagues. The latter is not available to many economists who are in smaller colleges or in positions in business and government where the number of professional colleagues is small. Professional meetings, as now conducted, are criticized by many as not helpful for educational purposes—though most consider them useful on other grounds. And there is a surprising amount of complaint directed toward the journals, which are charged with being too esoteric and theoretical.

I do not wish to be associated with these criticisms; yet I feel that more and better facilities could be provided. The following are some suggestions:

1. That sabbatical leaves should be available for all economists including those in small colleges, in government, and in business. It would be extremely helpful if economists in government and business could have extended periods of time off to reflect and to reacquaint themselves with contemporary thought in economics.
2. That a few leading universities might provide short courses or extended conferences intended primarily for the teaching of economics in smaller colleges.
3. That the American Economic Association might supplement the annual meeting by sponsoring smaller and more extended conferences on specialized subjects. A model of such conferences would be those sponsored by the International Economic Association, by the National Bureau of Economic Research, or by the Social Science Research Council.

Appendix

DESCRIPTION OF QUESTIONNAIRES

Twelve separate questionnaires were utilized in the study. In the text of the report frequent references are made to those questionnaires by schedule numbers. The purpose of this appendix is to provide a brief description of each of these schedules.

Schedule I was sent to chairmen of departments of economics in institutions where there was some doubt as to whether graduate work is offered. Its purpose was to ascertain whether graduate work is offered and the number of degrees awarded during 1945-46 to 1950-51. Number mailed, 108; number returned, 61.

Schedule II was sent to the chairmen of all departments of economics offering both the master's degree and the Ph.D., and also of all other departments which granted 4 or more master's degrees (but no doctorates) in economics during the two years 1949-50 and 1950-51. Its purpose was to obtain data on practices and policies in the selection and training of first-year graduate students in economics. The specific topics covered were:

admission
elimination of unfit students
residence requirements
credit and grade requirements
foreign language requirements
courses of study
minor fields
thesis
examinations
flexibility
superior students
advisory system
placement
plans for revision of program
research

Number mailed, 94; number returned, 68.

Schedule III was sent to the same department chairmen as Schedule II. Its purpose was to obtain statistical data on staff, enrollments of first-year graduate students, financial assistance to students, and mailing lists of present and former first-year students. Number mailed, 94; number returned, 59.

Schedule IV was sent to staff members (other than department chairmen) who are engaged at least part-time in graduate instruction in economics in the institutions to which Schedules II and III were sent. Its purpose was to obtain opinions and judgments regarding present practices in the selection and training of first-year graduate students in economics. Specific topics covered were the same as those listed above for Schedule II. Number mailed, 99; number returned, 61.

Schedule V was sent to chairmen of all departments of economics which granted 3 or more Ph.D.'s in economics during the years 1945-46 to 1950-51. Its purpose was to obtain information on the practices and policies in the selection and training of candidates for the Ph.D. in economics. Its general purpose and coverage was similar to that of Schedule II. Number mailed, 53; number returned, 27.

Schedule VI was sent to the same department chairmen as Schedule V. Its purpose was to obtain statistical data, relative to the training of Ph.D. candidates, similar to that obtained in Schedule III on master's candidates. Number mailed, 53; number returned, 32.

Schedule VII was sent to staff members (other than department chairmen) who are engaged at least part-time in graduate instruction in economics in the institutions to which Schedules V and VI are sent. Its purpose was to obtain opinions and judgments regarding present practices in the selection and training of candidates for the Ph.D. Specific topics covered were the same as those listed above for Schedule II. Number mailed, 79; number returned, 59.

Schedule VIII was addressed to persons serving as economists in a wide variety of large business firms. The list to which it was sent was constructed with the advice of several active business economists: Walter E. Hoadley, Jr., Wesley Lindow, Roy L. Reierson, and John Wills. The purpose of the questionnaire was to obtain information about the work of business economists, and to get their opinions and judgments regarding the training of economists for positions in private business. Number mailed, 103; number returned, 49.

Schedule IX was sent to graduate students in residence during 1951-52. Names and addresses of these graduate students were provided by department chairmen who responded to Schedules III and VI. A questionnaire was sent to every third graduate student so listed. The purpose of the questionnaire was to provide personal data (age, geographic origin, prior education, employment, career plans) and opinions regarding graduate study. Number mailed, 361; number returned, 140.

Schedule X was sent to persons who received advanced degrees in economics in 1939-40 or 1949-50. Names and addresses of these persons were supplied by department chairmen who responded to Sched-

ules III and VI. A questionnaire was sent to every third person so listed. In addition, questionnaires were sent to all other persons who received the Ph.D. in 1939-40 or 1949-50 and who are members of the American Economic Association. The purpose of this schedule was similar to that of Schedule IX. Number mailed, 528; number returned, 218.

Schedule XI was sent to the chairmen of departments of economics in institutions which do *not* give graduate work and which have enrollments of 2,000 or more as shown in the *World's Almanac*. The purpose of this schedule was to obtain the opinions of these academic employers of economists regarding graduate education. Number mailed, 203; number returned, 89.

Schedule XII was sent to a small list of leading supervisors of economists in various agencies of the Federal Government. Its purpose was to obtain opinions of these persons regarding the training of economists. Number mailed, 48; number returned, 22.